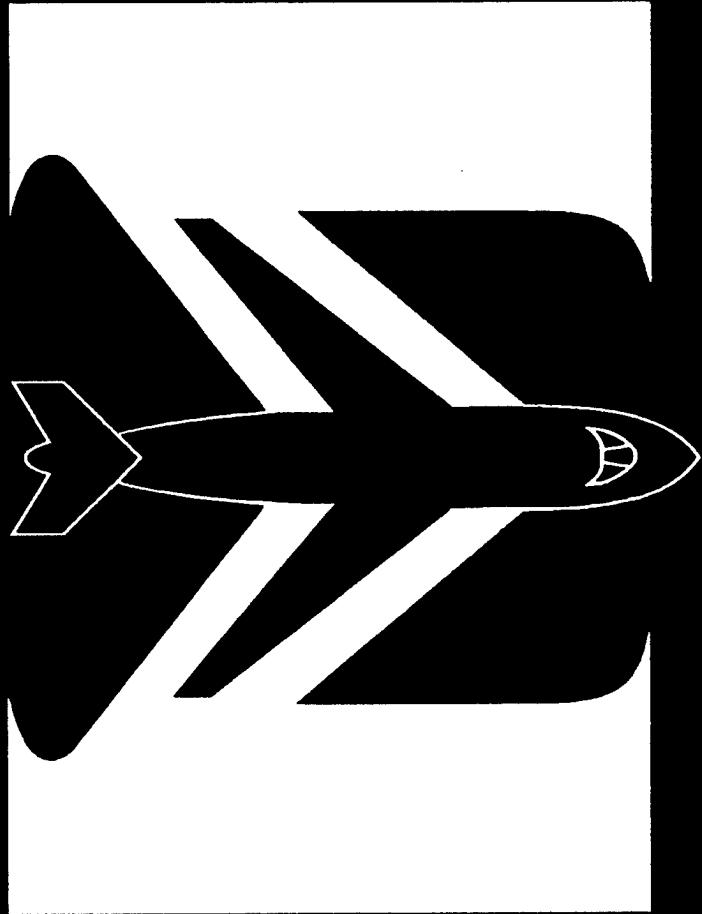




U.S. Department
of Transportation
**Federal Aviation
Administration**

General Aviation and Air Taxi Activity Survey

Calendar Year 1998



Office of Aviation Policy and Plans

FAA APO-00-6



U.S. Department
of Transportation
**Federal Aviation
Administration**

General Aviation and Air Taxi Activity Survey

Calendar Year 1998

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FAA Statistical Handbook of Aviation is a convenient source for historical data. It presents statistical information pertaining to the FAA, the National Airspace System, Airports, Airport Activity, US Civil Air Carrier Fleet, US Civil Air Carrier Operating Data, Airmen, General Aviation Aircraft, Aircraft Accidents, and Aeronautical Production & Import/Export.

1994 information is available on the Internet at: http://api.hq.faa.gov/apo_home.htm
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Publications
1997 information will be available: April 1999
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General Aviation & Air Taxi Activity Survey is an annual report that presents the results of the general aviation/air taxi activity survey conducted to obtain information on the activity of the US registered general aviation aircraft fleet. The report contains estimated flying time, landings, fuel consumption, lifetime airframe hours, and engine hours of the active general aviation aircraft by aircraft type, state and region of based aircraft, and primary use.

Latest printed edition: Calendar Year 1998
Order publication from: Diane Green (202-267-3352)
1999 information will be available: November 2000
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US Civil Airmen Statistics is a study of detailed airmen statistics. It contains statistics on pilots and non-pilots and the number of certificates issued.

1996 information is available on the Internet at: http://api.hq.faa.gov/apo_home.htm
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Select US Civil Airmen Statistics under 1998 Publications
1998 information will be available: July 1999
Person to contact: Arthur Salomon (202-267-7924) or Diane Green (202-267-3352)

PREFACE

This report presents the results of the 1998 General Aviation and Air Taxi Activity (GAATA) Survey and is prepared by the Statistics and Forecast Branch, Planning Analysis Division, Office of Aviation Policy and Plans (APO-1).

This survey provides information about the activity of the general aviation and air taxi aircraft fleet. It excludes information about commuter aircraft or airlines. The data and information obtained from the survey enable the Federal Aviation Administration to monitor the general aviation and air taxi fleet so that the FAA can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation and air taxi fleet, and implement measures to ensure the safe operation of all aircraft in the airspace.

Each year the survey information is collected using a statistically designed sample survey. The sample is selected from all general aviation and air taxi aircraft registered with the FAA. The Appendix of this report provides a detailed description of the survey, its history, and the survey sample design.

To be more responsive to the needs of the general aviation community, a number of major changes have been incorporated into the survey over the years. Changes made since 1993 are detailed in the Appendix and in previous publications.

The GAATA Survey is currently under both agency and industry review and improvements are being implemented incrementally. The processing and review of the 1998 data resulted in several changes in editing and estimation methods. Summary level estimates for 1995, 1996, and 1997 have been revised to reflect these changes. Revisions of more detailed information for these years are not possible due to resource limitations. Data for years prior to 1995 have not been revised and may not be comparable to the latest available data.

The report is divided into seven chapters and an appendix as follows:

Chapter 1, Historical General Aviation and Air Taxi Activity Measures, 1988-1998, presents summary information from the 1988 through 1998 surveys. Statistics include general aviation and air taxi population sizes, the number of active aircraft, and total and average hours flown. Other historical measures include active aircraft by aircraft type and by primary use. In addition, Chapter I includes three tables which highlight the 1998 findings. These tables include active general aviation and air taxi aircraft by aircraft type and primary use, active general aviation and air taxi aircraft total hours by aircraft type and primary use, and active general aviation and air taxi aircraft and hours flown by FAA region and state of based aircraft.

Chapter II, Common General Aviation and Air Taxi Activity Measures, presents information on the general aviation and air taxi population size, the number of active aircraft, and total and average hours flown. Statistics on another measurement of activity - number of landings - are also given by total, local flight and cross-country flight.

Chapter III, Primary and Actual Use, lists number of active aircraft by primary use by type of aircraft and total hours flown by actual use by the general aviation and air taxi fleet.

Chapter IV, **Flying Conditions**, presents statistics on the conditions under which the general aviation and air taxi population flies. Detailed statistics on the number of hours flown under Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC) during the day and night are given.

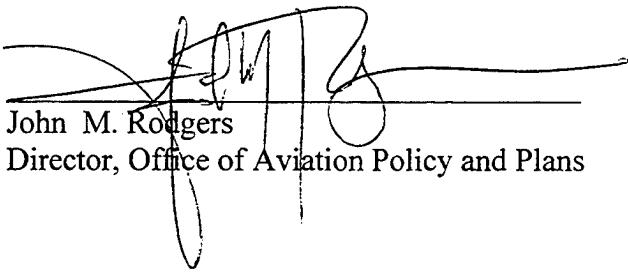
Chapter V, **Fuel Consumption**, gives information on the average and total fuel consumption rates of the general aviation and air taxi fleet.

Chapter VI, **Airframe Hours**, provides data on the age of the general aviation and air taxi fleet -- average airframe hours per active aircraft.

Chapter VII, **Landing Gear Systems**, presents data on the number and annual hours flown by general aviation aircraft with a fixed or retractable landing gear system by aircraft type, and the number of general aviation aircraft with a fixed or retractable landing gear system by age of aircraft.

Appendix, **Methodology for the 1998 General Aviation and Air Taxi Activity Survey**, provides a detailed description of the survey, its history, the survey sample design, and a definition and explanation of "standard error," a statistical measure reported in each table.

Suggestions and comments about this report are welcome and will be given careful consideration in planning future editions. Please direct any comments to Mr. Arthur Salomon, Statistics and Forecast Branch (APO-110), phone number **(202) 267-7924**, FAX **(202) 267-5370** or e-mail arthur.salomon@faa.gov.



John M. Rodgers
Director, Office of Aviation Policy and Plans

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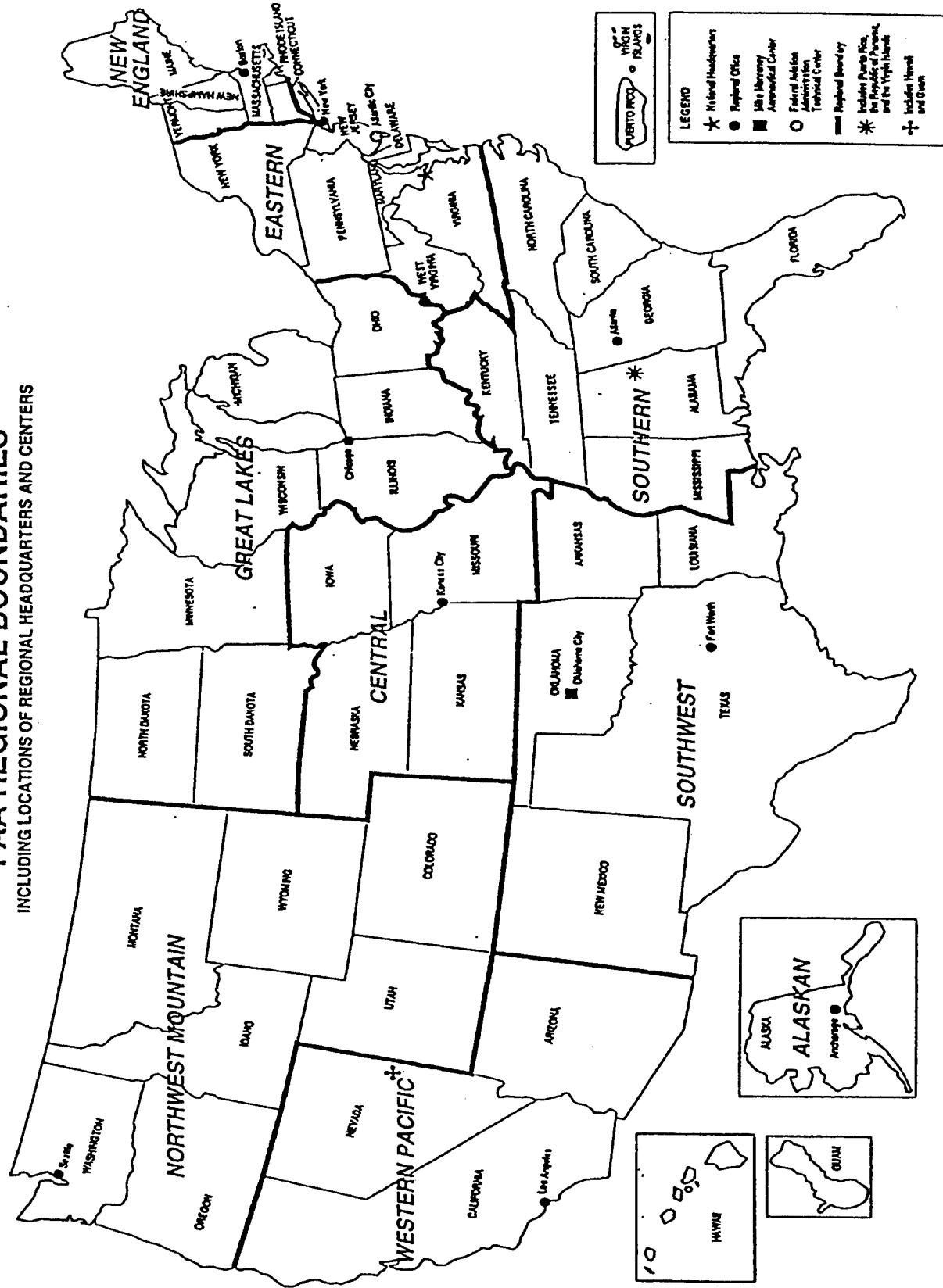
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FAA REGIONAL BOUNDARIES INCLUDING LOCATIONS OF REGIONAL HEADQUARTERS AND CENTERS



CHAPTER I

HISTORICAL GENERAL AVIATION AND AIR TAXI MEASURES

1.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

1.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3		PRIMARY USE												
AIRCRAFT TYPE	Total Active	Public Use	Corporate	Business	Personal	Instruc-tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See*	Air Tours**	Air Taxi	Other
Turbojet: Other % Std. Error	552 1.0	11 *	407 1.2	12 1.3	37 1.5	0 *	50 1.5	0 *	0 *	0 *	0 *	0 *	4 *	31 0.9
Rotocraft: Total % Std. Error	7,425 1.0	1,723 1.5	494 1.5	443 1.2	1,094 1.0	608 0.9	590 1.0	586 1.1	282 1.5	27 1.2	155 1.0	127 1.2	1,030 1.8	266 1.4
Piston: Total % Std. Error	2,545 0.9	185 1.2	60 1.3	201 1.2	743 1.2	518 1.2	361 1.2	244 1.2	52 1.2	10 1.2	107 1.3	5 1.3	3 *	55 1.2
Turbine: Total % Std. Error	4,881 1.2	1,538 1.2	435 1.2	242 1.6	351 1.6	89 1.4	229 1.3	341 1.2	230 1.5	17 1.6	49 0.9	121 0.9	1,027 1.3	211 1.3
1 Eng: Turbine % Std. Error	4,038 1.1	1,480 1.2	263 1.2	229 1.6	351 1.6	28 1.1	214 1.3	318 1.1	168 1.5	17 1.6	49 0.9	117 0.9	667 1.2	137 1.4
Multi-Eng: Turbine % Std. Error	843 1.4	58 1.4	172 1.5	13 *	0 *	62 1.8	15 2.0	23 * 1.7	62 1.7	0 *	0 *	4 *	360 1.7	74 1.4
Other aircraft: Total % Std. Error	5,580 2.1	12 *	12 3.0	71 4.0	4,454 2.5	296 2.3	0 *	0 *	0 *	58 3.4	332 2.6	0 *	0 0	345 2.7
Gliders % Std. Error	2,105 1.5	12 *	0 4.1	42 1.7	1,732 1.7	159 1.7	0 *	0 *	0 *	0 *	21 1.6	0 *	0 0	137 2.2
Lighter-than-air % Std. Error	3,475 2.5	0 *	12 3.3	29 5.3	2,722 3.1	136 3.1	0 *	0 *	0 *	58 3.7	310 3.0	0 *	0 0	207 3.0
Experimental: Total % Std. Error	16,502 2.4	80 3.5	203 3.0	853 3.2	13,189 3.1	158 3.4	99 2.6	141 3.5	23 * 5	0 *	0 *	0 0	22 3.1	1,730 3.5
Amateur: % Std. Error	13,189 2.4	43 5.5	9 *	522 3.3	11,418 3.3	139 3.7	0 *	25 2.9	23 * 0	0 *	0 *	0 0	0 0	1,011 3.4

1.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3		PRIMARY USE												
AIRCRAFT TYPE	Total Active	Public Use	Corporate	Business	Pers- onal	Instruc- tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours***	Air Taxi	Other
Exhibition:	1,630	0	0	71	1,011	5	0	0	0	0	0	0	0	543
% Std. Error	3.0	*	*	3.6	3.4	*	*	*	*	*	*	*	*	4.6
Other:	1,684	37	194	261	759	15	99	116	0	5	0	0	22	175
% Std. Error	1.7	1.8	1.9	2.1	1.9	2.3	1.6	2.7	*	*	*	*	2.0	1.9
Total All Aircraft	204,710	4,029	11,250	32,611	124,347	11,375	4,550	3,242	313	1,116	679	312	4,878	6,010
% Std. Error	1.8	1.7	1.9	2.3	2.1	1.9	1.6	1.8	1.4	2.2	1.5	1.5	1.8	1.9

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

** Includes sightseeing performed under 14 CFR 91: General Operating and Flight Rules.

*** Includes air tours performed under 14 CFR 135: Air Taxi Operators and Commercial Operators.

1.2 GENERAL AVIATION AND AIR TAXI NUMBER OF ACTIVE AIRCRAFT
BY AIRCRAFT TYPE
1988-1998

PAGE 1 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990 ^{2/}	1989 ^{2/}	1988 ^{2/}
Fixed Wing: Total	175,203	166,854	163,691	162,342	150,158	156,936	171,671	182,585	184,5	190,8	183,8
% Std. Error	1.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.6
Piston: Total	162,963	156,056	153,551	152,788	142,152	149,156	162,881	173,518	175,2	180,8	175,0
% Std. Error	1.9	0.7	0.7	0.7	0.8	0.8	7.0	0.7	0.6	0.5	0.6
1 Engine: Total	144,234	140,038	137,401	137,049	127,351	133,516	144,837	152,836	154,0	158,9	153,7
% Std. Error	1.9	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.6
2 Engine: Total	18,659	15,938	16,082	15,706	14,750	15,626	17,966	20,551	21.1	21.8	21.2
% Std. Error	1.2	2.8	2.4	2.1	2.3	2.1	1.7	1.7	1.3	1.2	1.4
Piston: Other	70	79	68	33	51	14	77	131	0.1	0.1	0.1
% Std. Error	4.0	43.0	47.4	76.0	48.8	40.7	17.7	22.2	30.0	33.8	21.7
Turboprop: Total	6,174	5,619	5,716	4,995	4,092	4,116	4,786	4,941	5.3	5.9	4.9
% Std. Error	0.7	2.1	2.5	3.7	3.2	3.3	3.1	2.7	1.8	1.5	1.7
1 Engine: Total	1,033	650	719	668	481	650	N/A	N/A	N/A	N/A	N/A
% Std. Error	0.3	5.8	6.0	6.2	5.0	6.8					
2 Engine: Total	5,076	4,939	4,917	4,295	3,605	3,443	4,187	4,415	4.9	5.7	4.7
% Std. Error	0.7	2.1	2.8	4.3	3.7	3.8	3.5	3.0	1.8	1.5	1.8
Turboprop: Other	65	29	80	32	7	24	599	526	0.4	0.2	0.2
% Std. Error	1.6	*	24.0	45.8	*	41.0	3.0	2.4	7.0	14.2	7.1
Turbojet: Total	6,066	5,178	4,424	4,559	3,914	3,663	4,004	4,126	4.1	4.1	3.9
% Std. Error	1.2	3.0	2.3	2.5	2.2	2.8	2.4	2.0	2.0	1.5	2.0
2 Engine: Total	5,513	4,638	4,077	4,071	3,652	3,426	3,738	3,863	3.7	3.7	3.6
% Std. Error	1.3	3.2	2.5	2.5	2.1	2.9	2.3	1.9	2.0	1.4	2.1

**1.2 GENERAL AVIATION AND AIR TAXI NUMBER OF ACTIVE AIRCRAFT
BY AIRCRAFT TYPE
1988-1998**

PAGE 2 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990 (Thousands)	1989 (Thousands)	1988 (Thousands)
Turbojet: Other	552	539	347	488	262	237	266	263	0.4	0.4	0.3
% Std. Error	1.0	8.2	6.3	14.6	15.1	11.8	15.3	14.4	8.2	8.2	5.5
Rotorcraft: Total	7,425	6,786	6,570	5,830	4,728	4,721	5,979	6,238	6.9	7.0	6.0
% Std. Error	1.0	2.5	3.3	4.4	5.1	3.4	3.8	3.5	3.0	0.6	3.6
Piston: Total	2,545	2,259	2,507	1,863	1,627	1,846	2,348	2,390	3.2	3.0	2.4
% Std. Error	0.9	6.0	6.3	9.2	10.3	6.3	7.7	7.6	5.3	1.2	7.9
Turbine: Total	4,881	4,527	4,063	3,967	3,101	2,875	3,631	3,848	3.7	4.0	3.6
% Std. Error	1.2	2.3	3.8	5.0	5.8	4.0	3.9	2.9	3.1	0.4	2.7
1 Engine: Turbine	4,038	3,762	3,420	3,234	2,485	2,246	N/A	N/A	N/A	N/A	N/A
% Std. Error	1.1	2.4	4.1	6.3	7.3	5.0	N/A	N/A	N/A	N/A	N/A
Multi-Engine: Turbine	843	764	643	733	616	629	N/A	N/A	N/A	N/A	N/A
% Std. Error	1.4	6.2	9.0	5.9	6.9	5.3	N/A	N/A	N/A	N/A	N/A
Other Aircraft Total	5,580	4,092	4,244	4,741	5,906	5,037	8,000	8,051	6.6	7.2	6.4
% Std. Error	2.1	5.8	5.5	3.8	4.9	1.9	2.9	3.0	2.4	4.1	3.4
Gliders	2,105	2,016	1,934	2,182	2,976	1,814	N/A	N/A	N/A	N/A	N/A
% Std. Error	1.5	4.1	4.5	4.9	6.4	6.9	N/A	N/A	N/A	N/A	N/A
Lighter-Than-Air	3,475	2,075	2,310	2,559	2,931	3,223	N/A	N/A	N/A	N/A	N/A
% Std. Error	2.5	10.6	9.4	5.2	7.2	5.7	N/A	N/A	N/A	N/A	N/A
Experimental Total	16,502	14,680	16,625	15,176	12,144	10,426	N/A	N/A	N/A	N/A	N/A
% Std. Error	2.4	4.3	4.1	3.3	3.9	N/A	N/A	N/A	N/A	N/A	N/A
Amateur Built	13,189	10,261	11,566	9,328	8,833	6,171	N/A	N/A	N/A	N/A	N/A
% Std. Error	2.4	5.8	5.6	4.6	4.9	5.9	N/A	N/A	N/A	N/A	N/A

1.2 GENERAL AVIATION AND AIR TAXI NUMBER OF ACTIVE AIRCRAFT
BY AIRCRAFT TYPE
1988-1998

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AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990 ^{2/}	1989 ^{2/}	1988 ^{2/}
Exhibition % Std. Error	1,630 3.0	1,798 7.3	2,094 8.6	2,245 7.8	637 16.8	1,868 7.4	N/A	N/A	N/A	N/A	N/A
Other % Std. Error	1,684 1.7	2,620 6.0	2,965 4.2	3,603 3.5	2,674 5.4	2,387 5.0	N/A	N/A	N/A	N/A	N/A
All Aircraft % Std. Error	204,710 1.8	192,414 0.7	191,129 0.7	188,089 0.7	172,935 0.7	177,120 0.7	185,650 0.7	196,874 0.7	198,0 0.5	205,0 0.5	196,2 0.5

Beginning in 1993, excluded commuters.

^{1/} Due to changes in methodology, estimates may not be comparable to those for 1994 and earlier years.

^{2/} Revised to reflect changes in adjustment for nonresponsible bias with 1996 telephone survey factors.

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

1.3 ACTIVE GENERAL AVIATION AND AIR TAXI AIRCRAFT
 BY PRIMARY USE
 1988-1998
 (AIRCRAFT IN THOUSANDS)

PAGE 1 OF 2

USE CATEGORY	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Public use ^{3/}	4.0	4.1	4.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Corporate	11.3	10.4	9.9	10.6	10.2	10.4	9.7	10.2	10.1	11.5	10.2
Business	32.6	27.7	30.7	28.3	26.5	28.5	29.4	31.9	33.1	35.0	32.6
Personal	124.3	115.6	113.4	113.4	104.1	104.6	110.5	116.0	112.6	116.4	114.4
Instructional	11.4	14.7	12.7	14.2	15.1	16.0	16.3	18.1	18.6	16.6	15.6
Aerial Application	4.6	4.9	5.0	5.0	4.4	5.2	5.2	7.1	6.2	6.6	6.6
Aerial Observation	3.2	3.3	3.0	4.7	5.1	4.9	5.7	5.2	4.9	5.4	4.4
External Load	0.3	0.2	0.4	0.2	0.1	0.1	N/A	N/A	N/A	N/A	N/A
Other Work	1.1	0.7	1.0	1.1	1.2	1.0	1.0	1.7	1.7	1.4	2.0
Sightseeing**	0.7	0.7	0.7	0.8	1.3	1.6	N/A	N/A	N/A	N/A	N/A
Air Taxi	4.9	4.8	4.1	3.8	4.2	4.0	4.9	5.6	5.8	6.6	6.0
Air Tours**	0.3	0.2	0.1	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	6.0	5.3	5.6	5.9	4.4	4.3	3.6	3.9	4.1	3.6	3.8
Subtotal	204.7	192.4	191.1	188.1	176.6	180.7	187.0	199.6	196.8	203.7	195.3
Commuter Air Taxi	N/A	N/A	N/A	N/A	N/A	N/A	0.8	0.7	1.2	1.3	0.9
Total	204.7	192.4	191.1	188.1	176.6	180.7	187.8	200.3	198.0	205.0	196.2

1.3 ACTIVE GENERAL AVIATION AND AIR TAXI AIRCRAFT
BY PRIMARY USE
1988-1998
(AIRCRAFT IN THOUSANDS)

PAGE 2 OF 2

- 1/ Due to changes in methodology, estimates may not be comparable to those for 1994 and earlier years.
- 2/ Revised to reflect changes in adjustment for nonresponsible bias with 1996 telephone survey factors.
- 3/ Public use category introduced in 1996.

Note: Row and column summations may differ from printed totals due to estimation procedures.

** Includes sightseeing done under 14 CFR 91: General Operating and Flight Rules and 14 CFR 135.

*** Includes air tours done under 14 CFR 135: Air Taxi Operators and Commercial Operators.

1.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 3

AIRCRAFT TYPE	ACTUAL USE													
	Total	Public Use	Corporate	Business	Pers- onal	Instruc- tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Tours**	Air Taxi	Other
Fixed Wing: Total	24,392,462	806,567	2,996,043	3,378,356	8,853,285	3,748,939	1,137,308	622,128	1,645	236,948	94,483	104,776	1,668,921	743,100
% Std. Error	1.4	16.8	5.4	2.6	1.7	4.5	8.2	11.0	100.9	14.4	17.8	28.2	8.0	12.2
Piston: Total	20,401,578	543,794	663,154	3,093,627	8,728,173	3,729,339	977,226	613,107	1,645	220,089	94,307	104,776	992,543	639,820
% Std. Error	1.4	18.1	8.9	2.7	1.7	4.6	8.8	11.2	103.1	14.6	18.2	28.8	10.1	13.4
1 Engine: Total	16,823,163	390,616	212,254	2,231,393	8,059,272	3,280,740	976,887	545,209	1,645	211,019	91,803	83,457	239,933	498,956
% Std. Error	1.6	20.0	15.0	3.0	1.9	4.8	9.1	12.5	106.1	15.5	19.2	30.2	19.1	15.4
2 Engine: Total	3,566,996	153,178	450,900	862,234	668,569	448,506	339	67,898	0	9,070	2,504	21,319	747,488	134,992
% Std. Error	3.0	33.7	8.9	4.5	3.5	13.6	67.1	24.1	*	44.9	50.3	68.2	9.6	25.2
Piston: Other	11,420	0	0	0	332	93	0	0	0	0	0	0	5,122	5,873
% Std. Error	85.9	*	*	*	162.6	269.2	*	*	*	*	*	*	148.0	121.0
Turboprop: Total	1,764,869	92,491	652,584	252,501	87,011	15,152	139,510	9,021	0	12,637	176	0	445,593	58,209
% Std. Error	3.4	21.9	6.8	8.4	11.3	16.0	19.7	80.3	*	72.2	50.0	*	11.6	32.0
1 Engine: Total	288,961	378	34,419	47,272	19,825	3,673	137,246	8,346	0	0	0	0	36,485	1,335
% Std. Error	7.9	114.9	21.7	15.0	22.8	26.7	16.0	77.3	*	*	*	*	40.8	61.0
2 Engine: Total	1,459,127	78,458	618,166	205,229	67,186	11,479	0	675	0	12,637	176	0	409,109	56,013
% Std. Error	3.8	21.5	7.1	9.8	12.9	19.4	*	142.7	*	74.2	51.4	*	12.2	34.0
Turboprop: Other	16,781	13,656	0	0	0	0	2,264	0	0	0	0	0	0	861
% Std. Error	50.2	65.3	*	*	*	*	54.7	*	*	*	*	*	*	83.4
Turbojet: Total	1,994,778	141,104	1,515,374	28,049	29,914	4,030	2,744	0	0	4,223	0	0	230,785	45,070
% Std. Error	5.1	16	42.8	4.8	25.3	21.4	36.0	52.9	*	93.5	*	*	17.7	39.7
2 Engine: Total	231,237	29,178	134,931	4,179	8,187	419	17,829	0	0	4,223	0	0	229,422	39,919
% Std. Error	12.0	71.9	68.9	31.6	45.1	35.1	*	*	*	103.9	*	*	19.7	45.0
Turbojet: Other													0	1,363
% Std. Error													71.8	90.2

**1.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT**

PAGE 2 OF 3

AIRCRAFT TYPE	ACTUAL USE													
	Total	Public Use	Corporate	Business	Personal	Institutional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See*	Tours**	Air Taxi	Other
Rotorcraft: Total	2,342,203	553,644	140,179	60,844	85,613	166,193	138,019	166,393	119,658	6,118	40,212	76,289	713,723	75,351
% Std. Error	3.3	7.3	13.6	23.0	11.5	12.5	12.4	10.7	18.2	42.3	22.8	26.1	9.0	24.2
Piston: Total	429,978	52,672	9,138	16,610	47,825	135,882	74,587	48,316	12,828	1,513	15,083	1,633	4,198	9,696
% Std. Error	4.5	17.5	29.9	16.8	8.5	10.4	11.8	13.0	30.0	39.4	16.2	78.0	38.0	35.7
Turbine: Total	1,912,226	500,973	131,041	44,234	37,788	30,311	63,432	118,077	106,830	4,605	25,130	74,656	709,525	65,655
% Std. Error	5.2	10.6	20.0	42.7	30.0	30.2	26.8	18.6	27.8	75.0	47.8	37.2	12.4	37.7
1 Eng: Turbine	1,415,157	478,206	67,488	25,350	33,080	7,666	59,057	106,757	40,090	4,605	22,090	71,207	462,904	36,689
% Std. Error	5.7	10.7	26.4	40.6	31.9	43.0	27.9	19.8	29.3	74.4	52.8	38.0	14.5	58.0
Multi-Eng: Turbine	497,069	22,767	63,553	18,884	4,708	22,645	4,374	11,320	66,740	0	3,040	3,449	246,621	28,967
% Std. Error	11.4	40.9	30.1	86.4	86.4	37.9	80.7	46.0	41.4	*	82.3	153.8	23.2	43.7
Other aircraft: Total	294,724	26	703	2,695	171,961	27,404	0	97	0	41,673	32,494	827	0	16,843
% Std. Error	12.3	90.5	115.7	43.5	8.0	29.4	*	117.2	*	69.4	27.9	62.8	*	23.4
Gliders	125,315	26	15	1,425	88,479	24,218	0	97	0	7	4,400	0	0	6,648
% Std. Error	9.5	76.3	114.2	58.4	9.2	27.6	*	99.0	*	114.2	71.6	*	*	26.0
Lighter-than-air	169,409	0	689	1,270	83,482	3,186	0	0	0	41,666	28,095	827	0	10,195
% Std. Error	21.6	*	129.3	54.9	12.3	22.3	*	*	*	76.0	32.2	68.7	*	36.3
Experimental: Total	1,070,692	12,902	76,013	80,928	670,390	18,598	30,932	23,328	32,025	787	1,725	747	17,266	105,073
% Std. Error	4.0	43.5	29.5	14.6	3.0	31.3	44.7	32.2	62.2	158.7	52.3	48.1	53.4	11.6
Amateur:	729,116	1,084	5,550	48,571	578,199	12,023	0	4,567	27,098	48	135	0	0	51,841
% Std. Error	3.8	94.1	107.3	17.3	3.1	23.3	*	52.3	71.4	88.4	113.3	*	*	15.2
Exhibition:	72,590	371	0	3,056	36,349	203	0	0	0	0	0	0	0	32,611
% Std. Error	7.7	63.6	*	57.9	15.6	90.7	*	*	*	*	*	*	*	20.2
Other:	268,986	11,447	70,463	29,302	55,841	6,372	30,932	18,761	4,927	739	1,590	747	17,266	20,620
% Std. Error	10.3	46.9	29.1	26.4	13.1	78.5	43.5	36.5	47.3	167.2	54.7	46.9	52.2	36.4

1.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3		ACTUAL USE												
AIRCRAFT TYPE	Total	Public Use	Corp-orate	Busi-ness	Pers-onal	Instruc-tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours**	Air Taxi	Other
Total All Aircraft	28,100,081	1,373,139	3,212,939	3,522,823	9,781,249	3,961,134	1,306,259	811,946	153,328	285,527	168,914	182,639	2,399,910	940,367
% Std. Error	1.3	10.7	4.8	2.4	1.4	4.0	7.1	8.7	29.8	16.1	14.8	24.7	7.1	9.6

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

** Includes sightseeing performed under 14 CFR 91: General Operating and Flight Rules.

*** Includes air tours performed under 14 CFR 135: Air Taxi Operators and Commercial Operators.

1.5 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN
BY AIRCRAFT TYPE
1988-1998
(HOURS IN THOUSANDS)

PAGE 1 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Fixed Wing: Total	24,392	24,111	23,402	23,196	21,203	21,634	24,075	26,617	29,546	29,327	28,040
% Std. Error	1.4	2.2	2.4	2.1	1.9	1.9	1.7	1.9	1.8	1.7	1.8
Piston: Total	20,402	20,743	20,091	20,251	18,823	19,321	21,417	23,919	25,832	24,907	24,291
% Std. Error	1.4	2.5	2.7	2.3	2.1	1.9	2.1	2.1	2.0	1.9	2.0
1 Engine: Total	16,823	18,345	17,606	17,831	16,404	17,010	18,435	20,608	21,883	20,600	20,326
% Std. Error	1.6	2.8	3.0	2.6	2.4	2.4	2.1	2.3	2.2	2.2	2.2
2 Engine: Total	3,567	2,380	2,474	2,416	2,408	2,309	2,976	3,301	3,897	4,292	3,943
% Std. Error	3.0	5.7	5.1	4.6	4.6	3.9	3.9	4.1	3.8	3.3	4.1
Piston: Other	11	19	11	4	11	1	7	10	53	16	20
% Std. Error	85.9	69.5	57.5	*	52.4	42.8	22.6	33.5	48.7	67.3	44.5
Turboprop: Total	1,765	1,655	1,768	1,490	1,142	1,192	1,582	1,628	2,319	2,892	2,195
% Std. Error	3.4	5.0	4.8	7.3	5.4	5.6	5.7	5.3	6.4	5.0	5.0
1 Engine: Total	289	321	328	292	203	250	N/A	N/A	N/A	N/A	N/A
% Std. Error	7.9	10.8	10.2	9.6	8.9	11.3					
2 Engine: Total	1,459	1,326	1,419	1,181	939	938	1,392	1,471	2,162	2,776	2,117
% Std. Error	3.8	5.7	5.5	8.9	6.3	6.4	6.5	5.8	6.8	5.2	5.1
Turboprop: Other	17	9	22	17	0.0	3	249	156	157	116	78
% Std. Error	50.2	*	30.1	55.1	*	42.6	10.2	12.8	10.9	16.6	14.9
Turbojet: Total	2,226	1,713	1,543	1,455	1,238	1,121	1,076	1,071	1,396	1,527	1,554
% Std. Error	4.6	6.4	5.0	5.1	3.8	4.7	4.2	4.5	4.1	3.7	4.4
2 Engine: Total	1,995	1,557	1,385	1,352	1,172	1,070	1,018	1,008	1,279	1,424	1,434
% Std. Error	5.1	6.9	5.2	5.3	3.9	4.8	4.3	4.7	4.3	3.9	4.7

1.5 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY AIRCRAFT TYPE 1988-1998 (HOURS IN THOUSANDS)

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Turbojet: Other % Std. Error	231 12.0	155 13.8	158 17.4	102 17.2	66 18.6	51 15.5	58 16.4	62 15.1	117 12.2	103 12.2	120 10.9
Rotocraft: Total % Std. Error	2,342 3.3	2,084 6.6	2,122 9.8	1,961 8.6	1,777 9.3	1,699 6.3	2,264 6.6	2,763 7.5	2,209 5.9	2,610 0.9	2,507 6.5
Piston: Total % Std. Error	430 4.5	343 13.6	591 21.9	337 13.0	369 12.4	391 8.7	423 12.4	549 12.0	716 10.2	692 2.1	533 11.6
Turbine: Total % Std. Error	1,912 5.2	1,739 7.5	1,531 10.6	1,624 9.8	1,408 11.0	1,308 7.6	1,842 7.6	2,214 9.0	1,493 7.2	1,918 0.9	1,974 7.6
1 Engine: Turbine % Std. Error	1,415 5.7	1,311 9.3	1,282 12.4	1,218 12.3	1,049 13.7	992 9.5	N/A	N/A	N/A	N/A	N/A
Multi-Engine: Turbine % Std. Error	497 11.4	429 10.9	249 14.8	406 14.1	359 17.3	316 10.8	N/A	N/A	N/A	N/A	N/A
Other Aircraft Total % Std. Error	295 12.3	192 12.1	227 15.5	261 10.7	388 13.4	338 N/A	407 6.0	483 8.9	341 7.0	396 7.4	568 24.2
Giders % Std. Error	125 9.5	133 15.6	150 17.1	170 15.7	291 18.4	161 17.1	N/A	N/A	N/A	N/A	N/A
Lighter-Than-Air % Std. Error	169 21.6	59 17.4	77 31.4	91 13.5	97 12.3	177 30.2	N/A	N/A	N/A	N/A	N/A
Experimental Total % Std. Error	1,071 4.0	1,327 14.6	1,158 6.7	1,194 8.3	724 6.3	785 N/A	N/A	N/A	N/A	N/A	N/A
Amateur Built % Std. Error	729 3.8	698 24.4	524 9.8	482 9.2	391 7.9	277 9.0	N/A	N/A	N/A	N/A	N/A

1.5 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN
 BY AIRCRAFT TYPE
 1988-1998
 (HOURS IN THOUSANDS)

PAGE 3 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Exhibition	73	246	192	260	44	170	N/A	N/A	N/A	N/A	N/A
% Std. Error	7.7	28.2	13.2	18.6	26.5	18.2					
Other	269	382	442	452	289	338	N/A	N/A	N/A	N/A	N/A
% Std. Error	10.3	15.9	11.6	16.8	11.1	15.0					
All Aircraft	28,100	27,713	26,909	26,612	24,092	24,455	26,747	29,862	32,096	32,332	31,114
% Std. Error	1.3	2.1	2.3	2.0	1.9	1.8	1.6	1.8	1.7	1.6	1.7

Beginning in 1993, excluded commuters.

^{1/} Due to changes in methodology, estimates may not be comparable to those for 1994 and earlier years.

^{2/} Revised to reflect changes in adjustment for nonresponsible bias with 1996 telephone survey factors.

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

1.6 ACTIVE GENERAL AVIATION AND AIR TAXI AIRCRAFT TOTAL HOURS FLOWN
 BY USE
 1988-1998
 (HOURS IN THOUSANDS)

PAGE 1 OF 2

USE CATEGORY ^{3/}	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{2/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Public use ^{3/}	1,373	1,096	1,047	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Corporate	3,213	2,878	2,898	3,069	2,486	2,635	2,251	2,486	2,913	3,453	3,472
Business	3,523	3,006	3,259	3,335	3,012	3,350	3,483	4,063	4,417	4,330	4,594
Personal	9,781	9,644	9,037	9,659	8,248	8,202	8,682	9,664	9,276	9,537	10,015
Instructional	3,961	4,956	4,759	4,410	4,382	4,626	5,485	6,160	7,244	5,993	4,917
Aerial Application	1,306	1,562	1,713	1,526	1,364	1,283	1,370	1,935	1,872	1,868	1,842
Aerial Observation	812	1,261	1,057	1,391	1,746	1,627	1,736	1,789	1,745	1,719	1,308
External Load	153	112	191	128	135	83	N/A	N/A	N/A	N/A	N/A
Other Work	286	139	265	280	241	180	348	476	572	517	525
Sightseeing**	169	127	195	179	309	325	N/A	N/A	N/A	N/A	N/A
Air Taxi	2,400	114	100	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Air Tours**	183	2,008	1,734	1,403	1,545	1,334	1,967	2,184	2,249	3,020	2,632
Other	940	819	656	1,107	622	603	364	470	475	507	774
Subtotal	28,100	27,713	26,909	26,612	24,092	24,455	26,747	29,862	30,763	30,940	30,078
Commuter Air Taxi	N/A	N/A	N/A	N/A	N/A	N/A	724	628	1,333	1,392	1,036
Total	28,100	27,713	26,909	26,612	24,092	24,455	27,471	30,490	32,096	32,332	31,114

1.6 ACTIVE GENERAL AVIATION AND AIR TAXI AIRCRAFT TOTAL HOURS FLOWN
BY USE
1988-1998
(HOURS IN THOUSANDS)

PAGE 2 OF 2

^{1/} Due to changes in methodology, estimates may not be comparable to those for 1994 and earlier years.

^{2/} Revised to reflect changes in adjustment for nonresponsible bias with 1996 telephone survey factors.

^{3/} Public use category introduced in 1996.

Note: Row and column summations may differ from printed totals due to estimation procedures.

** Includes sightseeing done under 14 CFR 91: General Operating and Flight Rules.

*** Includes air tours done under 14 CFR 135: Air Taxi Operators and Commercial Operators.

1.7 GENERAL AVIATION AND AIR TAXI AVERAGE HOURS FLOWN
BY AIRCRAFT TYPE
1988-1998

PAGE 1 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Fixed Wing: Total	139.2	144.5	143.0	142.9	141.2	137.9	140.2	145.8	160.1	153.7	152.6
% Std. Error	1.2	2.1	2.5	2.1	1.9	1.9	1.8	1.9	1.8	1.7	1.8
Piston: Total	125.2	132.9	130.8	132.5	132.4	129.5	131.5	137.8	147.4	137.8	138.8
% Std. Error	1.2	2.4	2.7	2.3	2.0	3.1	2.0	2.0	1.9	1.9	1.9
1 Engine: Total	116.6	131.0	128.1	130.1	128.8	127.4	127.3	134.8	142.1	129.6	132.2
% Std. Error	1.3	2.6	3.0	2.6	2.2	2.3	2.2	2.2	2.2	2.2	2.2
2 Engine: Total	191.2	149.3	153.8	153.8	163.2	147.8	165.6	160.6	184.7	196.9	186.0
% Std. Error	2.5	5.0	4.5	4.0	4.0	3.4	3.9	3.8	3.8	3.1	3.5
Piston: Other	163.6	238.0	159.5	118.4	224.5	94.7	85.5	74.3	526.4	157.0	203.8
% Std. Error	28.0	54.4	31.6	67.4	19.2	13.1	26.5	26.1	30.6	24.9	42.2
Turboprop: Total	285.8	294.5	309.3	298.3	279.0	289.5	330.5	329.4	437.5	490.2	448.0
% Std. Error	3.1	4.6	3.6	4.2	4.5	4.7	4.8	4.3	4.4	4.3	4.5
1 Engine: Total	279.6	492.5	456.2	437.0	421.4	385.2	N/A	N/A	N/A	N/A	N/A
% Std. Error	6.8	9.1	6.7	6.7	6.9	8.4					
2 Engine: Total	287.5	268.4	288.5	275.0	260.5	272.4	318.2	333.2	441.2	487.0	450.5
% Std. Error	3.4	5.2	4.2	5.1	5.3	5.5	5.5	4.5	4.7	4.4	4.6
Turboprop: Other	259.4	304.3	269.6	535.9	21.7	145.1	416.1	297.4	392.5	581.8	389.0
% Std. Error	33.4	31.0	17.9	30.6	0.0	11.6	1.1	14.0	8.3	13.7	16.7
Turbojet: Total	367.0	330.7	348.7	319.1	316.3	306.1	268.7	259.5	340.6	372.5	398.5
% Std. Error	3.7	5.6	4.4	4.7	3.3	3.5	3.6	4.0	3.7	3.4	3.8
2 Engine: Total	361.8	335.8	339.7	332.2	321.0	312.3	272.2	260.9	345.7	384.9	398.3
% Std. Error	4.1	6.0	4.6	4.9	3.4	3.6	3.7	4.2	4.0	3.6	4.1

1.7 GENERAL AVIATION AND AIR TAXI AVERAGE HOURS FLOWN
BY AIRCRAFT TYPE
1988-1998

PAGE 2 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Turbojet: Other	418.6	287.5	453.7	209.6	250.1	216.4	218.6	237.7	293.2	258.6	401.4
% Std. Error	9.0	11.1	12.2	10.8	11.5	7.8	13.4	7.5	10.8	11.5	10.4
Rotorcraft: Total	315.4	307.0	323.1	336.4	375.8	359.8	378.8	442.9	320.1	372.8	417.9
% Std. Error	2.6	6.2	9.3	7.6	7.7	5.6	7.8	7.8	5.5	0.8	6.2
Piston: Total	169.0	152.2	235.9	181.0	226.6	211.7	180.1	229.6	223.7	230.6	222.3
% Std. Error	3.0	12.1	19.8	9.5	8.5	6.6	11.8	9.0	8.9	1.9	9.0
Turbine: Total	391.8	384.3	376.9	409.3	454.1	454.9	507.2	575.4	403.6	479.5	548.3
% Std. Error	4.4	7.1	10.2	8.9	9.4	6.8	9.1	9.6	6.9	8.0	7.6
1 Engine: Turbine	350.5	348.4	374.8	376.7	422.3	422.3	441.5	N/A	N/A	N/A	N/A
% Std. Error	4.8	9.0	12.0	10.9	11.5	8.0	8.0	N/A	N/A	N/A	N/A
Multi-Engine: Turbine	589.9	561.0	388.1	553.5	582.4	502.6	N/A	N/A	N/A	N/A	N/A
% Std. Error	9.1	9.0	12.9	12.4	15.1	9.7	N/A	N/A	N/A	N/A	N/A
Other Aircraft Total	52.8	46.8	53.6	55.1	65.8	67.2	50.9	60.0	51.6	55.0	88.7
% Std. Error	8.1	11.4	15.5	10.8	12.4	N/A	8.2	9.7	6.8	7.5	25.1
Gliders	59.5	66.0	77.8	77.8	97.9	88.9	N/A	N/A	N/A	N/A	N/A
% Std. Error	7.1	15.0	16.8	16.0	17.8	15.7	N/A	N/A	N/A	N/A	N/A
Lighter-Than-Air	48.7	28.2	33.3	35.7	33.1	55.0	N/A	N/A	N/A	N/A	N/A
% Std. Error	13.0	13.7	32.4	13.5	10.0	29.6	N/A	N/A	N/A	N/A	N/A
Experimental Total	64.9	90.4	69.6	78.7	59.6	75.3	N/A	N/A	N/A	N/A	N/A
% Std. Error	2.3	14.2	5.7	7.6	5.0	N/A	N/A	N/A	N/A	N/A	N/A
Amateur Built	55.3	68.1	45.3	51.7	44.3	44.9	N/A	N/A	N/A	N/A	N/A
% Std. Error	2.1	23.7	8.1	8.0	6.1	6.8	N/A	N/A	N/A	N/A	N/A

1.7 GENERAL AVIATION AND AIR TAXI AVERAGE HOURS FLOWN
BY AIRCRAFT TYPE
1988-1998

PAGE 3 OF 3

AIRCRAFT TYPE	1998 ^{1/}	1997 ^{1/}	1996 ^{1/}	1995 ^{1/}	1994 ^{2/}	1993 ^{2/}	1992 ^{2/}	1991 ^{2/}	1990	1989	1988
Exhibition % Std. Error	44.5 6.2	136.8 27.2	91.5 10.7	115.9 18.0	68.3 22.0	90.9 16.6	N/A	N/A	N/A	N/A	N/A
Other % Std. Error	159.8 7.7	145.6 14.8	149.1 10.7	125.4 17.3	108.2 9.2	141.6 14.2	N/A	N/A	N/A	N/A	N/A
All Aircraft % Std. Error	137.3 1.0	144.0 2.0	140.8 2.3	141.5 2.0	139.3 1.7	138.1 1.8	144.1 1.8	151.7 1.8	162.1 1.7	157.7 1.6	158.6 1.7

Beginning in 1993, excluded commuters.

^{1/} Due to changes in methodology, estimates may not be comparable to those for 1994 and earlier years.

^{2/} Revised to reflect changes in adjustment for nonresponsible bias with 1996 telephone survey factors.

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

1.8 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN
 BY FAA REGION AND STATE OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

FAA REGION AND STATE	ACTIVE AIRCRAFT		HOURS FLOWN	
	Aircraft	Percent Standard Error	Hours (Thousands)	Percent Standard Error
Alaskan - Total	6,607	2.3	759	9.6
Central - Total	11,764	1.9	1,502	4.8
Iowa	2,274	2.6	235	10.4
Kansas	3,778	2.7	561	13.1
Missouri	3,903	1.6	507	6.3
Nebraska	1,810	1.5	200	9.0
Eastern - Total	26,276	2.1	3,520	3.8
Delaware	5,232	4.5	800	14.0
District of Columbia	7	2		
Maryland	2,408	1.6	284	9.1
New Jersey	3,295	1.5	421	7.1
New York	5,745	2.3	685	10.1
Pennsylvania	5,341	2.7	768	9.8
Virginia	3,401	2.0	484	12.9
West Virginia	845	1.1	77	7.9
Great Lakes - Total	35,719	2.1	4,568	3.3
Illinois	6,908	2.4	986	10.1
Indiana	3,939	2.2	516	9.5
Michigan	6,902	2.3	803	10.3
Minnesota	4,508	2.0	595	7.5
North Dakota	1,419	1.0	155	5.9
Ohio	6,434	2.9	786	10.5
South Dakota	1,294	1.5	164	8.2
Wisconsin	4,315	2.0	563	7.9
New England - Total	7,758	1.3	1,034	5.6
Connecticut	1,830	1.4	308	14.9
Maine	1,155	0.7	123	7.0
Massachusetts	2,654	1.6	353	8.6
New Hampshire	1,309	2.2	178	16.5
Rhode Island	306	0.8	34	17.2
Vermont	505	1.1	37	12.4

1.8 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN
 BY FAA REGION AND STATE OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 2	ACTIVE AIRCRAFT	HOOURS FLOWWN		
FAA REGION AND STATE	Aircraft	Percent Standard Error	Hours (Thousands)	Percent Standard Error
Northwest Mountain - Total	23,296	2.0	3,047	4.2
Colorado	4,279	2.1	678	11.4
Idaho	2,006	1.5	240	8.8
Montana	2,414	1.2	255	8.2
Oregon	5,317	2.4	665	10.6
Utah	1,936	1.6	319	10.0
Washington	6,348	2.7	782	8.9
Wyoming	998	1.6	108	13.8
Southern - Total	35,958	1.4	5,243	2.3
Alabama	3,712	1.4	566	7.6
Florida	12,785	1.3	1,962	3.4
Georgia	4,826	2.0	609	8.0
Kentucky	1,491	2.1	181	12.1
Mississippi	1,785	1.6	307	8.9
North Carolina	5,090	1.4	783	7.0
Puerto Rico	384	1.0	62	15.1
South Carolina	2,004	1.2	263	8.8
Southwest - Total	27,214	1.7	4,271	3.5
Arkansas	2,302	1.8	510	10.2
Louisiana	2,968	1.7	730	14.5
New Mexico	2,062	1.7	232	11.7
Oklahoma	3,795	1.8	429	7.2
Texas	16,087	1.6	2,369	4.1
Western-Pacific - Total	30,118	1.9	4,156	3.4
Arizona	5,121	1.7	689	6.5
California	21,852	2.2	2,909	4.5
Hawaii	497	0.9	176	12.0
Nevada	2,648	1.4	382	7.5
Other U.S. Territories	204	1.8	44	37.3
Total	204,710	1.8	28,100	1.3

CHAPTER II

COMMON GENERAL AVIATION AND AIR TAXI ACTIVITY MEASURES

2.1 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 3									
AIRCRAFT TYPE	Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
Fixed Wing									
Fixed Wing - Piston									
1 Eng. 1-3 Seats	59,408	41,753	2.5	70.3	2.5	4,988,744	3.0	119.5	2.1
1 Eng. 4+ Seats	114,030	102,480	1.5	89.9	1.5	11,834,419	2.0	115.5	1.8
1 Engine: Total	173,438	144,234	1.9	83.2	1.9	16,823,163	1.6	116.6	1.3
2 Eng: 1-6 Seats	15,233	12,822	1.8	84.2	1.8	2,148,012	3.8	167.5	3.2
2 Eng: 7+ Seats	6,800	5,837	1.1	85.8	1.1	1,418,984	4.4	243.1	3.8
2 Engine: Total	22,033	18,659	1.5	84.7	1.5	3,566,996	3.0	191.2	2.5
Piston: Other	214	70	4.0	32.6	4.0	11,420	85.9	163.6	28.0
Piston: Total	195,685	162,963	1.9	83.3	1.9	20,401,578	1.5	125.2	1.2
Fixed Wing - Turboprop									
1 Engine: Total	1,071	1,033	0.6	96.5	0.6	288,961	7.0	279.6	6.8
2 Eng: 1-12 Seats	4,231	4,071	0.9	96.2	0.9	1,118,606	5.1	274.8	4.9
2 Eng: 13+ Seats	1,041	1,005	0.3	96.6	0.3	340,521	5.0	338.8	4.8
2 Engine: Total	5,271	5,076	0.6	96.3	0.6	1,459,127	3.6	287.5	3.4
Turboprop: Other	97	65	1.6	66.7	1.6	16,781	50.2	259.4	33.4
Turboprop: Total	6,440	6,174	0.7	95.9	0.7	1,764,869	3.2	285.8	3.1

2.1 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3	AIRCRAFT TYPE	Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
Fixed Wing - Turbojet										
2 Engine Turbojet	6,275	5,513	1.4	87.9	1.4	1,994,778	4.7	361.8	4.1	
Turbojet: Other	689	552	0.9	80.2	0.9	231,237	11.2	418.6	9.0	
Turbojet: Total	6,964	6,066	1.3	87.1	1.3	2,226,014	4.3	367.0	3.7	
Fixed Wing: Total	209,089	175,203	1.8	83.8	1.8	24,392,462	1.4	139.2	1.2	
Rotorcraft										
Piston	3,560	2,545	0.9	71.5	0.9	429,978	4.2	169.0	3.0	
1 Eng: Turbine	4,419	4,038	0.9	91.4	0.9	1,415,157	5.3	350.5	4.8	
Multi-Eng: Turbine	1,076	843	1.6	78.3	1.6	497,069	11.6	589.9	9.1	
Turbine: Total	5,495	4,881	1.0	88.8	1.0	1,912,226	5.0	391.8	4.4	
Rotorcraft: Total	9,055	7,425	0.9	82.0	0.9	2,342,203	3.2	315.4	2.6	
Other Aircraft										
Gliders	2,723	2,105	1.4	77.3	1.4	125,315	9.2	59.5	7.1	
Lighter-than-air	5,718	3,475	2.5	60.8	2.5	169,409	21.5	48.7	13.0	
Other aircraft: Total		5,580	2.1	66.1	2.1	294,724	12.2	52.8	8.1	

2.1 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3	AIRCRAFT TYPE	Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
Experimental										
Amateur:	24,151	13,189	2.5	54.6	2.5	729,116	3.9	55.3	2.1	
Exhibition:	2,431	1,630	3.0	67.0	3.0	72,590	9.2	44.5	6.2	
Other:	2,141	1,684	1.6	78.6	1.6	268,986	9.8	159.8	7.7	
Experimental: Total	28,723	16,502	2.4	57.5	2.4	1,070,692	4.0	64.9	2.3	
Total All Aircraft	255,309	204,710	1.8	80.2	1.8	28,100,081	1.3	137.3	1.0	

2.2 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
 BY REGION OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 1		Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
REGION										
Alaskan	7,994	6,607	2.3	82.6	2.3	758,775	9.6	114.8	7.9	
Central	15,454	11,764	1.9	76.1	1.9	1,502,343	4.8	127.7	3.6	
Eastern	32,260	26,276	2.1	81.4	2.1	3,519,813	3.8	134.0	3.1	
Great Lakes	44,979	35,719	2.1	79.4	2.1	4,567,806	3.3	127.9	2.6	
New England	9,511	7,758	1.3	81.6	1.3	1,034,395	5.6	133.3	4.6	
Northwest Mt	29,927	23,296	2.0	77.8	2.0	3,046,703	4.2	130.8	3.3	
Southern	43,235	35,958	1.4	83.2	1.4	5,243,270	2.3	145.8	1.9	
Southwestern	33,809	27,214	1.7	80.5	1.7	4,270,798	3.5	156.9	2.8	
Western-Pacific	38,140	30,118	1.9	79.0	1.9	4,156,177	3.4	138.0	2.7	
Total All Aircraft	255,309	204,710	1.8	80.2	1.8	28,100,081	1.3	137.3	1.0	

**2.3 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED AIRCRAFT
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT**

PAGE 1 OF 4

STATE	Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
Alabama	4,186	3,712	1.4	88.7	1.4	565,698	7.6	152.4	6.8
Alaska	7,994	6,607	2.3	82.6	2.3	758,775	9.6	114.8	7.9
Arizona	6,406	5,121	1.7	79.9	1.7	689,231	6.5	134.6	5.2
Arkansas	2,991	2,302	1.8	77.0	1.8	509,628	10.2	221.4	7.9
California	27,917	21,852	2.2	78.3	2.2	2,909,041	4.5	133.1	3.5
Colorado	5,644	4,279	2.1	75.8	2.1	678,175	11.4	158.5	8.7
Connecticut	2,267	1,830	1.4	80.7	1.4	308,352	14.9	168.5	12.0
Delaware	6,280	5,232	4.5	83.3	4.5	799,838	14.0	152.9	11.7
District of Columbia	7	7		100.0		1,717		250.3	0.0
Florida	15,714	12,785	1.3	81.4	1.3	1,962,460	3.4	153.5	2.7
Georgia	5,895	4,826	2.0	81.9	2.0	608,527	8.0	126.1	6.6
Hawaii	615	497	0.9	80.8	0.9	175,677	12.0	353.6	9.7
Idaho	2,620	2,006	1.5	76.6	1.5	239,998	8.8	119.6	6.8
Illinois	8,458	6,908	2.4	81.7	2.4	986,054	10.1	142.7	8.3
Indiana	4,700	3,939	2.2	83.8	2.2	515,613	9.5	130.9	8.0
Iowa	3,209	2,274	2.6	70.9	2.6	234,691	10.4	103.2	7.4
Kansas	4,827	3,778	2.7	78.3	2.7	561,200	13.1	148.6	10.2

2.3 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
 BY STATE OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 4		Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
Kentucky	1,985	1,491	2.1	75.1	2.1	180,569	12.1	121.1	9.1	
Louisiana	3,375	2,968	1.7	87.9	1.7	730,359	14.5	246.1	12.8	
Maine	1,322	1,155	0.7	87.4	0.7	123,288	7.0	106.7	6.1	
Maryland	2,811	2,408	1.6	85.7	1.6	283,563	9.1	117.7	7.8	
Massachusetts	3,171	2,654	1.6	83.7	1.6	352,661	8.6	132.9	7.2	
Michigan	8,247	6,902	2.3	83.7	2.3	802,766	10.3	116.3	8.6	
Minnesota	6,123	4,508	2.0	73.6	2.0	594,947	7.5	132.0	5.5	
Mississippi	2,284	1,785	1.6	78.2	1.6	307,490	8.9	172.3	7.0	
Missouri	5,236	3,903	1.6	74.5	1.6	506,670	6.3	129.8	4.7	
Montana	2,800	2,414	1.2	86.2	1.2	254,656	8.2	105.5	7.0	
Nebraska	2,182	1,810	1.5	82.9	1.5	199,783	9.0	110.4	7.5	
Nevada	3,201	2,648	1.4	82.7	1.4	382,229	7.5	144.3	6.2	
New Hampshire	1,784	1,309	2.2	73.4	2.2	178,236	16.5	136.2	12.1	
New Jersey	3,937	3,295	1.5	83.7	1.5	421,343	7.1	127.9	6.0	
New Mexico	2,734	2,062	1.7	75.4	1.7	232,332	11.7	112.7	8.9	
New York	7,019	5,745	2.3	81.9	2.3	684,503	10.1	119.1	8.3	
North Carolina	6,032	5,090	1.4	84.4	1.4	782,773	7.0	153.8	5.9	

2.3 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
 BY STATE OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 4

STATE	Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
North Dakota	1,806	1,419	1.0	78.6	1.0	155,014	5.9	109.2	4.7
Ohio	8,543	6,434	2.9	75.3	2.9	786,465	10.5	122.2	7.9
Oklahoma	4,825	3,795	1.8	78.7	1.8	429,309	7.2	113.1	5.7
Oregon	6,873	5,317	2.4	77.4	2.4	665,109	10.6	125.1	8.2
Pennsylvania	6,997	5,341	2.7	76.3	2.7	767,905	9.8	143.8	7.5
Rhode Island	346	306	0.8	88.4	0.8	34,476	17.2	112.7	15.2
South Carolina	2,306	2,004	1.2	86.9	1.2	263,038	8.8	131.2	7.7
South Dakota	1,698	1,294	1.5	76.2	1.5	163,701	8.2	126.5	6.3
Tennessee	4,107	3,677	1.7	89.5	1.7	467,502	10.6	127.1	9.5
Texas	19,885	16,087	1.6	80.9	1.6	2,369,170	4.1	147.3	3.3
Utah	2,302	1,936	1.6	84.1	1.6	318,668	10.0	164.6	8.4
Vermont	622	505	1.1	81.2	1.1	37,382	12.4	74.0	10.1
Virginia	4,123	3,401	2.0	82.5	2.0	484,287	12.9	142.4	10.6
Washington	8,542	6,348	2.7	74.3	2.7	782,167	8.9	123.2	6.6
West Virginia	1,086	845	1.1	77.8	1.1	76,657	7.9	90.7	6.2
Wisconsin	5,403	4,315	2.0	79.9	2.0	563,245	7.9	130.5	6.3
Wyoming	1,146	998	1.6	87.0	1.6	107,929	13.8	108.2	12.0

2.3 1993 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
 BY STATE OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 4		Estimated Number Active		Percent Standard Error		Estimated Percent Active		Percent Standard Error		Estimated Total Hours Flown		Estimated Average Hours		Percent Standard Error	
STATE	Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error	Estimated Average Hours	Percent Standard Error
Puerto Rico	470	384	1.0	81.6	1.0	61,583	15.1	160.6	12.4						
Other	255	204	1.8	79.9	1.8	43,631	37.3	214.1	29.8						
Total	255,309	204,710	1.8	80.2	1.8	28,100,081	1.3	137.3	1.0						

2.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 4		REGION OF BASED AIRCRAFT								
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	South Western	Western Pacific	Total
Fixed Wing										
Fixed Wing - Piston										
1 Eng: 1-3 Seats % Std. Error	279,682 23.5	553,669 18.5	1,116,496 16.0	1,753,985 13.2	320,379 14.4	998,149 12.3	1,793,575 11.1	1,575,691 9.3	1,259,116 16.5	9,650,741 4.8
1 Eng: 4+ Seats % Std. Error	584,675 23.1	656,880 9.5	1,533,358 8.2	2,410,363 6.4	588,158 9.3	1,394,373 7.2	2,706,954 5.9	1,634,244 8.6	2,017,337 6.9	13,526,341 2.7
1 Engine: Total % Std. Error	864,357 19.1	1,210,549 8.8	2,649,854 8.4	4,164,347 6.7	908,537 7.9	2,392,522 7.1	4,500,528 5.7	3,209,935 6.5	3,276,453 7.8	23,177,082 2.6
2 Eng: 1-6 Seats % Std. Error	21,922 43.4	397,837 47.2	249,685 8.0	323,339 13.8	35,608 23.5	135,658 42.5	511,210 9.6	238,810 12.0	232,303 12.6	2,146,371 8.0
2 Eng: 7+ Seats % Std. Error	39,387 19.8	94,184 9.8	286,250 16.4	181,936 11.4	96,986 28.9	165,586 14.8	362,104 13.1	222,692 17.5	239,729 9.9	1,688,855 5.2
2 Engine: Total % Std. Error	61,309 20.1	492,021 19.3	535,935 12.9	505,276 9.5	132,594 31.2	301,244 20.4	873,314 8.1	461,503 12.1	472,031 8.7	3,835,227 4.9
Piston: Other % Std. Error	0	476	281	74	0	8,456	9,591	192	0	19,071 78.5
Piston: Total % Std. Error	925,665 16.8	1,703,046 10.1	3,186,070 7.3	4,669,698 6.0	1,041,131 7.8	2,702,222 6.8	5,383,433 4.9	3,671,630 5.9	3,748,485 6.5	27,031,380 2.3

2.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 4		REGION OF BASED AIRCRAFT						Total	
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Western-Pacific	
Fixed Wing - Turboprop									
1 Engine: Total	0	35,719	24,495	71,881	2,070	133,528	100,811	480,815	158,051
% Std. Error	38.2	18.9	26.6	89.4	35.1	22.1	26.3	16.1	12.7
2 Eng: 1-12 Seats	25,556	76,468	176,780	157,390	23,536	62,444	236,586	180,373	107,928
% Std. Error	30.2	21.6	18.1	10.0	18.5	19.4	7.6	18.9	24.2
2 Eng: 13+ Seats	2,708	93,780	38,299	80,442	21,952	85,326	90,780	43,003	77,235
% Std. Error	25.5	6.5	41.5	12.6	36.2	23.8	11.2	9.8	20.7
2 Engine: Total	28,265	170,247	215,079	237,832	45,488	147,770	327,366	223,376	185,164
% Std. Error	22.4	15.7	21.5	10.8	22.4	19.0	8.2	10.4	18.7
Turboprop: Other	0	0	5,938	0	0	0	0	378	261
% Std. Error			66.6						5.522
Turboprop: Total	28,265	205,966	245,511	309,713	47,557	281,299	428,555	704,452	348,736
% Std. Error	22.4	14.8	17.9	10.9	22.4	20.2	8.6	18.0	17.7
Fixed Wing - Turbojet									
2 Engine Turbojet	17,261	99,219	373,025	277,897	71,546	155,445	300,249	260,445	187,235
% Std. Error	12.1	12.8	9.7	8.9	15.3	7.8	15.9	10.3	4.4
Turbojet: Other	0	8,983	22,122	32,068	5,452	8,012	25,971	39,067	10,449
% Std. Error	19.8	10.9	17.4	15.5	21.0	15.4	70.0	16.0	152,123
Turbojet: Total	17,261	108,202	395,147	309,965	76,997	163,457	326,220	299,512	197,684
% Std. Error	10.9	10.3	8.4	8.3	14.7	6.9	17.4	7.3	13.4
Fixed Wing: Total	971,191	2,017,214	3,826,728	5,289,376	1,165,686	3,146,978	6,138,208	4,675,594	4,294,905
% Std. Error	16.4	8.6	6.3	5.3	7.1	6.6	4.3	6.0	6.0

2.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 4

REGION OF BASED AIRCRAFT

AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	South Western	Western-Pacific	Total
Rotorcraft										
Piston	13,234	52,059	187,865	202,426	45,971	180,946	187,660	143,076	447,860	1,461,097
% Std. Error	42.2	34.0	19.2	13.0	28.9	17.2	13.5	12.9	9.4	5.4
1 Eng: Turbine	162,575	65,636	142,855	152,344	60,676	339,655	716,564	1,563,367	782,984	3,986,656
% Std. Error	79.9	55.7	33.3	21.0	54.0	30.8	14.4	11.3	7.8	6.4
Multi-Eng: Turbine	4,036	17,355	130,773	79,879	9,256	63,785	53,285	311,773	104,080	774,222
% Std. Error	9.5	9.5	19.2	14.9	40.3	41.1	27.1	16.9	23.8	10.6
Turbine: Total	166,611	82,991	273,628	232,223	69,931	403,440	769,849	1,875,139	887,064	4,760,878
% Std. Error	95.2	41.0	20.0	17.0	55.5	26.2	13.2	10.0	7.6	5.7
Rotorcraft: Total	179,845	135,050	461,493	434,649	115,903	584,386	957,509	2,018,215	1,334,925	6,221,975
% Std. Error	54.6	24.2	13.4	9.5	30.5	13.9	8.8	6.6	5.6	3.6
Other Aircraft										
Gliders	147	4,703	22,991	24,302	9,692	20,308	38,586	35,368	58,359	214,455
% Std. Error	32.4	18.5	37.0	73.3	30.4	39.5	30.2	35.4	35.4	13.7
Lighter-than-air	1,420	11,693	31,969	165,458	13,234	35,566	44,154	57,817	66,751	428,061
% Std. Error	6.7	40.2	12.4	50.6	15.0	7.9	16.2	13.0	30.3	16.0
Other aircraft: Total	1,567	16,396	54,960	189,759	22,926	55,874	82,740	93,185	125,110	642,516
% Std. Error	18.3	30.5	12.2	41.3	33.5	11.1	20.1	17.4	23.1	11.1

2.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 4		REGION OF BASED AIRCRAFT								
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	South Western	Western-Pacific	Total
Experimental										
Amateur Built:	13,196	60,057	111,038	281,319	50,203	206,114	256,507	143,593	194,751	1,316,779
% Std. Error	9.4	10.8	12.8	19.3	20.0	12.8	10.3	6.9	6.7	5.4
Exhibition:	389	2,509	8,117	6,147	1,792	13,141	16,780	7,432	15,539	71,848
% Std. Error	37.8	35.7	16.9	102.5	46.6	12.5	14.6	30.4	12.0	
Other:	0	8,624	38,160	20,348	4,681	41,624	44,214	95,356	27,483	280,491
% Std. Error	21.5	30.3	48.2	18.8	43.2	34.3	43.4	24.6	18.5	
Experimental: Total	13,585	71,191	157,316	307,813	56,677	260,880	317,502	246,382	237,773	1,669,119
% Std. Error	13.8	9.4	16.6	18.2	17.8	12.6	9.7	18.3	6.8	5.4
Total All Aircraft	1,166,188	2,239,851	4,500,496	6,221,598	1,361,191	4,048,117	7,495,959	7,033,376	5,992,713	40,059,488
% Std. Error	16.2	8.1	5.9	4.8	7.1	5.5	3.8	5.4	5.2	2.0

2.5 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 4		REGION OF BASED AIRCRAFT							
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Western-Pacific	Total
Fixed Wing									
Fixed Wing - Piston									
1 Eng: 1-3 Seats	147,181	440,640	954,951	1,384,059	245,987	811,503	1,457,500	1,307,784	1,067,584
% Std. Error	24.2	18.6	17.9	14.7	16.7	13.1	11.2	10.3	18.2
1 Eng: 4+ Seats	311,020	381,634	968,914	1,548,328	360,940	802,037	1,609,503	932,138	1,145,093
% Std. Error	25.1	9.5	11.0	7.6	13.0	9.4	6.7	9.9	8.6
1 Engine: Total	458,201	822,275	1,923,865	2,932,387	606,927	1,613,540	3,067,003	2,239,922	2,212,676
% Std. Error	20.7	9.4	10.8	8.1	10.3	9.0	6.4	7.9	10.3
2 Eng: 1-6 Seats	8,063	324,193	88,185	132,240	10,241	70,593	225,373	112,463	141,532
% Std. Error	39.5	55.8	12.3	28.2	30.0	75.5	18.7	22.4	19.3
2 Eng: 7+ Seats	6,792	20,583	129,956	40,189	25,888	36,929	76,757	37,085	65,423
% Std. Error	35.2	16.0	23.4	19.7	37.1	28.1	23.0	18.0	19.6
2 Engine: Total	14,856	344,776	218,141	172,430	36,129	107,522	302,130	149,549	206,955
% Std. Error	24.2	26.5	19.7	20.7	38.2	45.4	14.7	15.7	13.9
Piston: Other	0	378	95	62	0	3,388	54	186	0
% Std. Error		24.1	33.1	0.0		35.1	0.0	0.0	
Piston: Total	473,057	1,167,429	2,142,101	3,104,879	643,056	1,724,450	3,369,187	2,389,657	2,419,631
% Std. Error	18.6	12.8	9.9	7.6	10.0	8.9	5.9	7.4	8.8

2.5 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 4			REGION OF BASED AIRCRAFT							
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	South Western	Western Pacific	Total
Fixed Wing - Turboprop										
1 Engine: Total	0	25,483	9,066	18,396	105	128,456	57,674	431,956	121,857	792,994
% Std. Error		55.0	32.1	44.9	42.8	35.6	37.8	29.7	18.2	15.9
2 Eng: 1-12 Seats	1,642	6,264	18,652	16,054	3,850	3,461	48,079	27,291	20,414	145,706
% Std. Error	36.5	58.6	51.3	45.5	26.1	14.1	20.6	41.2	40.9	14.3
2 Eng: 13+ Seats	836	59,753	20,391	11,129	11,062	14,504	15,480	6,226	26,089	165,469
% Std. Error	44.4	10.9	71.9	78.1	68.7	95.7	45.0	18.8	62.5	16.8
2 Engine: Total	2,478	66,016	39,043	27,183	14,912	17,964	63,559	33,517	46,503	311,174
% Std. Error	48.8	31.9	97.1	66.0	58.2	99.9	23.8	21.7	61.8	17.4
Turboprop: Other	0	0	1,503	0	0	0	95	230	2,577	4,405
% Std. Error			82.7							35.6
Turboprop: Total	2,478	91,499	49,612	45,579	15,016	146,421	121,328	465,703	170,938	1,108,573
% Std. Error	48.8	29.3	71.6	43.6	57.0	38.5	24.6	27.0	31.7	14.8
Fixed Wing - Turbojet										
2 Engine Turbojet	420	7,988	95,774	35,057	3,310	18,300	27,941	78,731	17,538	285,061
% Std. Error	0.0	31.9	28.4	35.5	21.9	52.2	22.0	51.7	47.6	17.8
Turbojet: Other	0	757	1,536	1,441	372	611	2,366	32,384	1,853	41,321
% Std. Error		39.7	12.3	16.1	23.0	23.0	20.9	85.2	12.9	46.2
Turbojet: Total	420	8,745	97,310	36,499	3,681	18,912	30,308	111,115	19,392	326,382
% Std. Error	0.0	28.3	23.4	31.3	19.7	49.5	18.9	47.0	30.1	17.0
Fixed Wing: Total	475,955	1,267,674	2,289,023	3,186,957	661,754	1,889,782	3,520,823	2,966,475	2,609,960	18,868,402
% Std. Error	18.1	11.8	9.3	7.3	9.9	9.3	5.7	8.3	8.5	2.9

2.5 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 4

AIRCRAFT TYPE	Alaskan	Central	Eastern	REGION OF BASED AIRCRAFT				Total
				Great Lakes	New England	Northwest Mountain	Southern	
Rotorcraft								
Piston	12,091	44,847	172,466	183,069	36,005	162,701	119,849	391,977
% Std. Error	46.6	38.7	20.4	13.7	35.1	17.7	14.5	10.1
1 Eng: Turbine	136,121	51,330	115,802	112,110	50,825	238,541	554,223	1,284,772
% Std. Error	91.3	67.3	35.5	27.2	62.8	43.0	16.5	5.9
Multi-Eng: Turbine	1,519	16,402	88,831	54,920	2,078	20,223	36,608	576,438
% Std. Error	12.9	20.7	20.4	46.7	33.8	29.8	23.3	7.6
Turbine: Total	137,640	67,732	204,633	167,030	52,903	258,763	590,830	3,108,321
% Std. Error	103.9	48.0	20.8	21.0	70.4	38.8	15.3	7.6
Rotorcraft: Total	149,732	112,579	377,099	350,099	88,908	421,464	752,597	429,639
% Std. Error	61.8	27.9	14.9	10.8	38.0	18.1	9.9	13.3
Other Aircraft								
Gliders	122	4,199	16,351	20,950	8,208	18,261	34,936	53,727
% Std. Error	31.3	19.7	43.1	88.4	34.0	43.6	31.9	15.4
Lighter-than-air	710	5,950	18,420	130,498	7,656	19,537	23,474	285,790
% Std. Error	0.0	36.7	14.2	62.6	24.2	10.6	26.1	23.0
Other aircraft: Total	832	10,149	34,771	151,448	15,864	37,798	58,409	100,594
% Std. Error	10.2	33.2	14.3	50.2	49.6	15.9	28.1	14.6

2.5 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 4		REGION OF BASED AIRCRAFT						Total	
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Western	Western-Pacific
Experimental									
Amateur Built:	8,841	42,723	76,210	185,418	38,775	160,881	164,059	106,852	128,123
% Std. Error	11.6	13.4	16.8	13.1	23.6	16.4	6.1	8.6	8.2
Exhibition:	324	1,770	5,081	3,992	1,637	9,798	9,947	4,989	7,051
% Std. Error	53.6	41.9	15.8	15.8	107.2	57.2	17.7	26.1	20.6
Other:	0	5,616	14,725	9,622	3,913	28,571	25,966	84,205	11,030
% Std. Error	32.6	73.2	34.2	25.0	62.2	50.0	48.5	16.3	16.7
Experimental: Total	9,165	50,110	96,016	199,032	44,325	199,250	199,971	196,045	146,204
% Std. Error	16.6	12.0	23.6	12.5	20.7	16.4	8.2	22.4	7.8
Total All Aircraft	635,684	1,440,511	2,796,909	3,887,536	810,850	2,548,295	4,531,800	4,764,965	3,885,710
% Std. Error	23.4	11.0	8.5	6.4	9.8	7.6	5.0	7.0	7.0
									25,302,260
									2.6

26 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT
 By AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 4		REGION OF BASED AIRCRAFT								
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Western	Western Pacific	Total
Fixed Wing										
Fixed Wing - Piston										
1 Eng: 1-3 Seats % STD. ERROR	132,501 38.9	113,029 33.1	161,545 9.7	369,925 10.9	74,391 11.4	186,646 14.6	336,074 16.2	267,907 10.4	191,533 12.1	1,833,551 5.2
1 Eng: 4+ Seats % STD. ERROR	273,654 24.9	275,245 16.8	564,445 7.4	862,035 8.1	227,219 7.7	592,336 9.2	1,097,451 9.5	702,106 9.9	872,244 8.8	5,466,734 3.7
1 Engine: Total % STD. ERROR	406,156 21.6	388,274 15.5	725,989 6.0	1,231,960 6.4	301,610 6.2	778,982 7.4	1,433,525 8.2	970,012 7.2	1,063,777 7.3	7,300,286 3.0
2 Eng: 1-6 Seats % STD. ERROR	13,859 48.3	73,644 28.6	161,500 11.9	191,099 13.6	25,367 29.6	65,065 24.2	285,837 8.9	126,347 11.0	90,771 7.2	1,033,488 4.8
2 Eng: 7+ Seats % STD. ERROR	32,594 24.4	73,601 12.3	156,294 15.8	141,747 12.9	71,098 38.4	128,658 19.1	285,347 14.6	185,607 20.9	174,306 11.7	1,249,251 6.2
2 Engine: Total % STD. ERROR	46,453 26.1	147,245 12.8	317,794 12.2	332,846 9.9	96,465 40.5	193,723 19.2	571,184 9.3	311,954 16.5	265,076 11.1	2,282,740 4.9
Piston: Other % STD. ERROR	0	98 43.3	186 51.3	12	0	5,068 132.5	9,537 149.2	6	0	14,907 107.6
Piston: Total % STD. ERROR	452,609 19.1	535,617 12.0	1,043,969 5.9	1,564,819 5.7	398,075 10.0	977,772 7.5	2,014,246 6.5	1,281,973 7.0	1,328,853 6.5	9,597,932 2.6

2.6 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 4		REGION OF BASED AIRCRAFT								
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	South Western	Western Pacific	Total
Fixed Wing - Turboprop										
1 Engine: Total	0	10,236	15,429	53,485	1,965	5,072	43,136	48,859	36,193	214,375
% STD. ERROR	45.3	27.9	23.1	92.2	44.6	14.2	32.3	33.9	33.9	12.3
2 Eng: 1-12 Seats	23,914	70,204	158,129	141,336	19,686	58,983	188,507	153,082	87,514	901,356
% STD. ERROR	31.3	22.9	20.6	9.5	24.1	20.0	9.5	20.2	32.3	6.5
2 Eng: 13+ Seats	1,872	34,027	17,908	69,313	10,990	70,823	75,300	36,777	51,146	368,057
% STD. ERROR	40.7	13.3	25.7	9.1	36.4	21.7	11.7	11.2	14.8	5.8
2 Engine: Total	25,787	104,231	176,036	210,649	30,576	129,806	263,807	189,860	138,660	1,269,412
% STD. ERROR	24.7	14.4	14.5	8.7	20.4	16.7	9.2	11.3	17.2	4.7
Turboprop: Other	0	0	4,434	0	0	0	284	31	2,945	7,694
% STD. ERROR			62.1				0.0		8.4	48.3
Turboprop: Total	25,787	114,467	195,899	264,134	32,541	134,878	307,227	238,749	177,798	1,491,481
% STD. ERROR	24.7	14.1	12.9	8.7	20.4	17.7	8.0	10.6	16.0	4.4
Fixed Wing - Turbojet										
2 Engine Turbojet	16,840	91,231	277,250	242,839	68,236	137,145	272,308	181,715	169,697	1,457,261
% STD. ERROR	13.3	9.5	10.8	9.0	14.5	7.8	8.5	11.3	11.3	3.7
Turbojet: Other	0	8,225	20,586	30,627	5,080	7,401	23,604	6,683	8,596	110,802
% STD. ERROR	23.2	11.6	17.6	17.3	23.1	15.6	39.2	19.3	19.3	8.0
Turbojet: Total	16,840	99,457	297,836	273,467	73,316	144,545	295,912	188,397	178,292	1,568,064
% STD. ERROR	12.1	7.6	9.3	8.4	13.9	6.9	8.3	8.1	8.1	3.3
Fixed Wing: Total	495,236	749,540	1,537,705	2,102,419	503,932	1,257,196	2,617,385	1,709,119	1,684,944	12,657,477
% STD. ERROR	19.8	9.4	5.5	5.3	8.4	7.2	5.3	5.8	6.1	2.3

2.6 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 4		REGION OF BASED AIRCRAFT							
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	Western Pacific	Total
Rotorcraft									
Piston	1,143	7,211	15,398	19,357	9,967	18,245	25,893	23,227	55,883
% STD. ERROR	26.9	30.5	18.5	16.0	30.1	19.4	14.0	13.1	10.6
1 Eng: Turbine	26,454	14,306	27,054	40,235	9,851	101,114	162,341	290,435	878,335
% STD. ERROR	46.2	22.5	33.2	20.5	43.0	28.7	12.7	12.6	12.0
Multi-Eng: Turbine	2,517	953	41,942	24,958	7,178	43,563	16,677	163,251	43,544
% STD. ERROR	75.4	36.9	19.2	39.1	50.3	30.0	21.3	50.6	14.5
Turbine: Total	28,971	15,259	68,996	65,193	17,028	144,677	179,019	453,685	250,090
% STD. ERROR	54.8	21.4	36.2	18.0	30.8	27.3	11.7	11.3	11.7
Rotorcraft: Total	30,113	22,471	84,394	84,550	26,995	162,922	204,912	476,912	305,973
% STD. ERROR	34.5	16.3	21.3	11.4	21.1	16.5	8.4	7.5	8.6
Other Aircraft									
Giders	24	505	6,640	3,351	1,484	2,046	3,650	6,905	4,632
% STD. ERROR	0.0	42.6	42.6	18.0	26.7	20.0	17.9	65.2	10.2
Lighter-than-air	710	5,743	13,549	34,960	5,578	16,029	20,680	25,139	19,884
% STD. ERROR	13.4	54.7	19.7	18.2	31.7	12.7	12.5	17.8	13.4
Other aircraft: Total	734	6,247	20,189	38,311	7,061	18,075	24,330	32,044	24,516
% STD. ERROR	28.3	49.0	22.3	17.2	25.3	13.0	11.8	22.8	12.3

2.6 1998 GENERAL AVIATION AND AIR TAXI TOTAL NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 4		REGION OF BASED AIRCRAFT								
AIRCRAFT TYPE	Alaskan	Central	Eastern	Great Lakes	New England	Northwest Mountain	Southern	South Western	Western-Pacific	Total
Experimental										
Amateur Built:										
% STD. ERROR	4.355 11.5	17,334 12.3	34,828 17.4	95,901 34.6	11,428 14.8	45,233 6.5	92,448 26.3	36,741 9.0	66,628 10.0	404,897 11.0
Exhibition:										
% STD. ERROR	65	739	3,036	2,155	156	3,344	6,834	2,443	8,488	27,260 11.4
Other:										
% STD. ERROR	0	3,008 29.7	23,435 21.7	10,725 85.4	769	13,053 73.8	18,249 36.8	11,152 36.2	16,454 41.7	96,843 16.3
Experimental: Total										
% STD. ERROR	4,420 16.9	21,081 10.8	61,289 20.6	108,782 31.9	12,352 15.6	61,629 8.0	117,531 21.7	50,386 10.8	91,570 11.9	529,000 9.2
Total All Aircraft										
% STD. ERROR	530,504 14.6	799,339 8.4	1,703,587 5.2	2,334,062 4.8	550,341 8.3	1,499,823 5.8	2,964,159 4.5	2,268,411 5.1	2,107,003 5.3	14,757,228 2.0

2.7 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY AGE OF AIRCRAFT
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 1		Aircraft Population Size	Estimated Number Active	Percent Standard Error	Estimated Percent Active	Percent Standard Error	Estimated Total Hours Flown	Percent Standard Error	Estimated Average Hours	Percent Standard Error
AGE OF AIRCRAFT	(YEARS OLD)									
1 to 5	1994 - 1998	19,558	15,704	1.4	80.3	1.4	2,787,530	3.8	177.5	3.0
6 to 10	1989 - 1993	10,185	8,612	1.2	84.6	1.2	1,727,457	5.2	200.6	4.4
11 to 15	1984 - 1988	11,248	9,569	1.3	85.1	1.3	1,805,515	4.2	188.7	3.5
16 to 20	1979 - 1983	38,318	34,868	1.2	91.0	1.2	7,113,631	2.2	204.0	2.0
21 to 25	1974 - 1978	42,036	37,254	1.4	88.6	1.4	5,357,188	2.5	143.8	2.2
26 to 30	1969 - 1973	28,034	23,793	1.6	84.9	1.6	2,565,967	3.1	107.8	2.7
31 to 35	1964 - 1968	32,472	27,795	1.6	85.6	1.6	2,706,697	3.2	97.4	2.7
36 to 40	1959 - 1963	17,398	14,039	1.9	80.7	1.9	1,457,540	7.3	103.8	5.9
41 to 45	1954 - 1958	11,841	8,965	2.3	75.7	2.3	863,264	9.4	96.3	7.1
46 to 50	1949 - 1953	8,345	5,221	3.1	62.6	3.1	291,714	5.2	55.9	3.3
51 to 55	1944 - 1948	20,281	11,650	3.3	57.4	3.3	686,234	10.7	58.9	6.2
56 to 60	1939 - 1943	6,488	3,553	3.5	54.8	3.5	202,144	12.5	56.9	6.9
Over 60	- 1938	1,892	678	5.0	35.9	5.0	19,722	49.4	29.1	17.7
Year of Manufacture Unknown		7,212	3,008	3.4	41.7	3.4	515,479	11.1	171.4	4.6
Total All Aircraft		255,309	204,710	1.8	80.2	1.8	28,100,081	1.3	137.3	1.0

2.8 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN IN RANGES OF HOURS FLOWN
 BY AGE OF AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 2		Estimate of Total Hours Flown	TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE					
AGE OF AIRCRAFT (BUILT)	(YEARS OLD)		1 - 50 Hours	51 - 100 Hours	101 - 150 Hours	151 - 200 Hours	201 - 300 Hours	301 - 400 Hours
1 to 5	1994 - 1998	2,787,530	169,584	277,793	164,282	216,231	285,602	255,059
6 to 10	1989 - 1993	1,727,457	87,374	119,834	149,360	83,907	141,497	171,147
11 to 15	1984 - 1988	1,805,515	83,731	138,118	141,519	140,159	317,265	292,940
16 to 20	1979 - 1983	7,113,631	228,745	776,637	610,610	519,669	905,814	1,078,232
21 to 25	1974 - 1978	5,357,188	367,324	833,765	729,904	512,328	744,090	697,410
26 to 30	1969 - 1973	2,565,967	292,828	592,355	430,240	230,598	297,718	196,454
31 to 35	1964 - 1968	2,706,697	366,210	705,420	443,886	334,035	277,900	145,821
36 to 40	1959 - 1963	1,457,540	207,887	321,323	181,130	138,492	122,832	149,288
41 to 45	1954 - 1958	863,264	140,119	211,454	162,964	63,899	111,802	57,415
46 to 50	1949 - 1953	291,714	80,733	135,310	46,708	21,910	7,053	0
51 to 55	1944 - 1948	686,234	215,965	197,979	62,422	54,563	39,922	9,928
56 to 60	1939 - 1943	202,144	79,208	49,659	17,829	20,214	1,977	2,739
Over 60	- 1938	19,722	10,352	1,650	2,236	0	0	3,793
Year of Manufacture Unknown		515,479	30,366	60,648	13,895	32,194	106,948	33,833
Total All Aircraft		28,100,081	2,360,424	4,421,944	3,156,986	2,368,199	3,360,420	3,094,057
								2,419,965

2.8 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN IN RANGES OF HOURS FLOWN
 BY AGE OF AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 2		AGE OF AIRCRAFT (BUILT) (YEARS OLD)	Estimate of Total Hours Flown	TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE			
501 - 700 Hours	701 - 1000 Hours	1001 - 1300 Hours	1301 - 1600 Hours	Over 1600 Hours			
1 to 5	1994 - 1998	19,558	517,541	320,732	205,891	59,042	105,041
6 to 10	1989 - 1993	10,185	226,129	266,556	98,774	55,966	146,125
11 to 15	1984 - 1988	11,248	246,751	116,601	29,181	46,507	62,224
16 to 20	1979 - 1983	38,318	987,355	787,909	135,257	22,298	183,256
21 to 25	1974 - 1978	42,036	400,846	403,634	89,163	39,575	35,822
26 to 30	1969 - 1973	28,034	116,802	146,528	9,256	0	15,461
31 to 35	1964 - 1968	32,472	91,789	55,714	124,227	44,611	4,170
36 to 40	1959 - 1963	17,398	15,840	19,476	118,145	0	137,350
41 to 45	1954 - 1958	11,841	0	0	0	0	113,865
46 to 50	1949 - 1953	8,345	0	0	0	0	0
51 to 55	1944 - 1948	20,281	2,894	3,515	0	11,819	84,603
56 to 60	1939 - 1943	6,488	0	12,833	0	0	0
Over 60	- 1938	1,892	0	0	0	0	0
Year of Manufacture Unknown		7,212	30,210	120,442	50,361	0	0
Total All Aircraft		255,309	2,636,156	2,253,941	860,254	279,818	887,917

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT; TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 8

AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE						
		1 - 50 Hours	51 - 100 Hours	101 - 150 Hours	151 - 200 Hours	201 - 300 Hours	301 - 400 Hours	
Fixed Wing								
Fixed Wing - Piston								
1 Eng: 1-3 Seats	Aircraft Hours	4,1753 4,988,740	21,906 632,133	8,348 682,238	3,449 459,909	1,675 324,389	2,162 597,016	
1 Eng: 4+ Seats	Aircraft Hours	102,480 11,834,416	37,280 1,181,621	33,361 2,677,658	14,057 1,872,406	6,273 1,196,520	5,275 1,407,389	
1 Engine: Total	Aircraft Hours	144,234 16,823,152	59,186 1,813,754	41,709 3,359,896	17,506 2,332,314	7,947 1,520,909	7,437 2,004,405	
2 Eng: 1-6 Seats	Aircraft Hours	12,822 2,148,012	2,933 116,712	4,144 396,630	2,304 349,639	1,340 286,588	976 288,746	
2 Eng: 7+ Seats	Aircraft Hours	5,837 1,418,983	850 24,688	1,170 98,841	848 110,515	637 117,428	492 205,737	
2 Engine: Total	Aircraft Hours	18,659 3,566,994	3,783 141,400	5,315 495,471	3,152 460,155	1,976 404,016	1,859 517,432	
Piston: Other	Aircraft Hours	70 11,420	40 344	8 509	3 375	0 0	0 0	
Piston: Total	Aircraft Hours	162,963 20,401,568	63,010 1,955,498	47,031 3,855,876	20,661 2,792,844	9,924 1,924,925	9,296 2,521,836	

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 8		AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE					
				501 - 700 Hours	701 - 1000 Hours	1001 - 1300 Hours	1301 - 1600 Hours		
Fixed Wing									
Fixed Wing - Piston									
1 Eng: 1-3 Seats	Aircraft Hours	41,753 4,988,740	1,099 670,294	427 387,666	34 39,911	8 11,819	22 51,022		
1 Eng: 4+ Seats	Aircraft Hours	102,480 11,834,416	957 590,197	706 587,164	159 192,191	28 39,575	153 343,524		
1 Engine: Total	Aircraft Hours	144,234 16,823,152	2,056 1,260,490	1,133 974,830	193 232,102	36 51,394	175 394,546		
2 Eng: 1-6 Seats	Aircraft Hours	12,822 2,148,012	143 95,003	95 88,018	124 172,433	0 0	0 0		
2 Eng: 7+ Seats	Aircraft Hours	5,837 1,416,983	346 207,836	223 180,286	31 35,693	19 27,402	23 61,330		
2 Engine: Total	Aircraft Hours	18,659 3,566,994	489 302,838	318 268,305	155 208,126	19 27,402	23 61,330		
Piston: Other	Aircraft Hours	70 11,420	12 7,811	0 0	0 0	0 0	0 0		
Piston: Total	Aircraft Hours	162,963 20,401,568	2,557 1,571,140	1,451 1,243,135	347 440,228	55 78,796	198 455,876		

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 8		AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOURS RANGE					
1 - 50 Hours	51 - 100 Hours	101 - 150 Hours	151 - 200 Hours	201 - 300 Hours	301 - 400 Hours	401 - 500 Hours			
Fixed Wing - Turboprop									
1 Engine: Total	Aircraft Hours	1,033 288,961	54 1,233	160 14,022	177 22,400	156 29,334	104 26,890	79 27,912	153 69,124
2 Eng: 1-12 Seats	Aircraft Hours	4,071 1,118,605	187 7,098	444 37,651	367 47,956	562 98,687	936 229,713	853 289,468	464 204,039
2 Eng: 13+ Seats	Aircraft Hours	1,005 340,521	165 3,999	39 3,375	117 14,132	64 10,604	108 27,034	117 39,417	134 56,763
2 Engine: Total	Aircraft Hours	5,076 1,459,127	352 11,097	483 41,027	484 62,088	626 109,291	1,044 256,747	970 328,885	598 260,801
Turboprop: Other	Aircraft Hours	65 16,781	8 130	9 861	38 4,930	0 0	0 0	0 0	0 0
Turboprop: Total	Aircraft Hours	6,174 1,764,869	414 12,461	652 55,910	699 89,417	782 138,625	1,148 283,637	1,048 356,798	751 329,925
Fixed Wing - Turbojet									
2 Engine Turbojet	Aircraft Hours	5,513 1,994,777	118 3,714	568 47,162	264 33,221	698 126,143	978 243,214	984 345,654	717 316,675
Turbojet: Other	Aircraft Hours	552 231,237	21 155	11 717	28 3,184	44 7,116	100 22,148	112 35,741	87 35,210
Turbojet: Total	Aircraft Hours	6,066 2,226,014	140 3,869	580 47,879	292 36,406	742 133,259	1,078 265,362	1,097 381,394	804 351,886
Fixed Wing: Total	Aircraft Hours	175,203 24,392,448	63,563 1,971,828	48,263 3,959,664	21,652 2,918,666	11,448 2,196,808	11,522 3,070,836	7,414 2,761,622	4,718 2,219,798

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 8

AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOURS RANGE				
		501 - 700 Hours	701 - 1000 Hours	1001 - 1300 Hours	1301 - 1600 Hours	Over 1600 Hours
Fixed Wing - Turboprop						
1 Engine: Total	Aircraft Hours	1,033 288,961	130 79,941	21 18,104	0 0	0 0
2 Eng: 1-12 Seats	Aircraft Hours	4,071 1,118,605	111 65,455	95 78,697	46 50,361	6 9,481
2 Eng: 13+ Seats	Aircraft Hours	1,005 340,521	113 59,057	135 107,453	9 10,079	4 0
2 Engine: Total	Aircraft Hours	5,076 1,459,127	223 124,512	231 186,149	55 60,440	6 9,481
Turboprop: Other	Aircraft Hours	65 16,781	0 0	0 0	9 10,860	0 0
Turboprop: Total	Aircraft Hours	6,174 1,764,869	353 204,453	252 204,254	64 71,300	6 9,481
2 Engine Turbojet	Aircraft Hours	5,513 1,994,777	667 374,264	372 276,767	93 97,374	14 20,100
Turbojet: Other	Aircraft Hours	552 231,237	75 38,089	52 34,480	0 0	2 2,098
Turbojet: Total	Aircraft Hours	6,066 2,226,014	742 412,353	424 311,247	93 97,374	15 22,197
Fixed Wing: Total	Aircraft Hours	175,208 24,392,448	3,652 2,187,946	2,128 1,758,635	505 608,902	76 110,474
						59 162,788
						261 627,274

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 5 OF 8

AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE					
		1 - 50 Hours	51 - 100 Hours	101 - 150 Hours	151 - 200 Hours	201 - 300 Hours	301 - 400 Hours
Rotorcraft							
Piston	Aircraft Hours	2,545 429,978	700 16,894	542 35,491	280 29,972	183 28,667	259 56,052
1 Eng: Turbine	Aircraft Hours	4,038 1,415,156	580 11,625	434 32,292	330 35,775	322 50,539	494 113,981
Multi-Eng: Turbine	Aircraft Hours	843 497,069	44 947	33 2,969	77 11,453	53 9,437	91 25,520
Turbine: Total	Aircraft Hours	4,881 1,912,225	624 12,572	467 35,261	407 47,227	375 59,976	585 139,502
Rotorcraft: Total	Aircraft Hours	7,425 2,342,202	1,324 29,466	1,009 70,752	688 77,199	558 88,644	844 195,554
Other Aircraft							
Gliders	Aircraft Hours	2,105 125,315	1,264 25,118	559 39,933	100 11,588	58 9,708	64 14,650
Lighter-than-air	Aircraft Hours	3,475 169,409	2,830 61,611	502 35,214	67 8,109	5 944	25 7,406
Other aircraft: Total	Aircraft Hours	5,580 294,724	4,094 86,729	1,061 75,146	168 19,697	63 10,652	89 22,056

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 6 OF 8		AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE			
501 - 700 Hours	701 - 1000 Hours			1001 - 1300 Hours	1301 - 1600 Hours	Over 1600 Hours	
Rotorcraft							
Piston	Aircraft Hours	2,545 429,978	137 67,825	100 69,554	13 12,422	0 0	2 3,143
1 Eng. Turbine	Aircraft Hours	4,038 1,415,156	446 234,864	452 330,348	177 175,615	85 104,869	65 101,321
Multi-Eng: Turbine	Aircraft Hours	843 497,069	88 56,740	101 87,499	23 29,707	32 50,862	50 121,828
Turbine: Total	Aircraft Hours	4,881 1,912,225	534 291,604	553 417,847	200 205,322	117 155,732	115 223,148
Rotorcraft: Total	Aircraft Hours	7,425 2,342,202	671 359,429	653 487,400	214 217,744	117 155,732	117 226,291
Other Aircraft							
Gliders	Aircraft Hours	2,105 125,315	6 3,743	0 0	0 0	0 0	0 0
Lighter-than-air	Aircraft Hours	3,475 169,409	15 7,384	0 0	0 0	9 13,612	20 34,352
Other aircraft: Total	Aircraft Hours	5,580 294,724	21 11,127	0 0	0 0	9 13,612	20 34,352

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 7 OF 8

AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE					
		1 - 50 Hours	51 - 100 Hours	101 - 150 Hours	151 - 200 Hours	201 - 300 Hours	301 - 400 Hours
Experimental							
Amateur:	Aircraft Hours	13,189 729,116	8,942 239,777	3,002 246,257	796 111,249	269 53,063	109 29,476
Exhibition:	Aircraft Hours	1,630 72,590	978 21,439	551 39,598	101 11,553	0 0	0 0
Other:	Aircraft Hours	1,684 268,986	448 11,184	437 30,526	161 18,619	115 19,031	189 42,498
Experimental: Total	Aircraft Hours	16,502 1,070,692	10,368 272,400	3,990 316,380	1,058 141,422	384 72,094	298 71,974
Total All Aircraft	Aircraft Hours	204,710 28,100,080	79,349 2,360,422	54,323 4,421,944	31,565 3,156,984	12,454 2,368,198	12,753 3,360,420

2.9 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS BY NUMBER OF AIRCRAFT
 AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 8 OF 8		NUMBER OF AIRCRAFT AND TOTAL HOURS FLOWN IN EACH FLIGHT HOUR RANGE			
AIRCRAFT TYPE	Estimate of Number Active & Hours Flown	501 - 700 Hours	701 - 1000 Hours	1001 - 1300 Hours	1301 - 1600 Hours
Experimental					
Amateur:	Aircraft Hours	13,189 729,116	19 11,017	0 0	23 27,369
Exhibition:	Aircraft Hours	1,630 72,590	0 0	0 0	0 0
Other:	Aircraft Hours	1,684 268,986	129 66,637	10 7,906	6 6,239
Experimental: Total	Aircraft Hours	16,502 1,070,692	148 77,653	10 7,906	29 33,608
Total All Aircraft	Aircraft Hours	204,710 28,100,080	4,492 2,636,156	2,790 2,253,940	748 860,254
					203 279,818
					398 887,917

CHAPTER III

PRIMARY AND ACTUAL USE

3.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 6		PRIMARY USE												
AIRCRAFT TYPE	Total Active	Public Use	Corp- orate	Busi- ness	Pers- onal	Instruc- tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Tours***	Air Taxi	Other
Fixed Wing														
Fixed Wing - Piston														
1 Eng; 1-3 Seats														
Est. Active	41,753	354	75	2,300	28,425	4,291	3,387	958	8	439	91	0	0	1,426
% Std. Error	2.5	3.6	3.9	3.1	3.1	2.9	2.7	3.0		3.8	3.3			3.4
Est. % Active	70.3													
1 Eng; 4+ Seats														
Est. Active	102,480	772	1,185	20,375	70,938	5,138	52	1,319	0	499	94	153	587	1,369
% Std. Error	1.6	1.6	1.7	1.6	1.7	1.6	2.5	1.7		1.7	1.5	1.6	1.7	1.7
Est. % Active	89.9													
1 Engine; Total														
Est. Active	144,234	1,126	1,260	22,675	99,363	9,429	3,438	2,277	8	938	185	153	587	2,795
% Std. Error	1.9	2.2	2.4	2.3	2.2	2.0	1.7	2.1		2.3	2.0	2.3	2.5	2.3
Est. % Active	83.2													
2 Eng; 1-6 Seats														
Est. Active	12,822	251	1,013	5,293	4,587	642	0	154	0	40	4	0	586	252
% Std. Error	1.4	1.5	1.6	1.6	1.5	1.4		1.4					1.7	1.6
Est. % Active	84.2													
2 Eng; 7+ Seats														
Est. Active	5,837	292	1,119	1,544	1,107	229	0	65	0	10	3	32	1,171	266
% Std. Error	0.9	1.0	1.0	1.0	1.0	1.2		0.9		1.0		1.1	1.0	0.9
Est. % Active	85.8													
2 Engine; Total														
Est. Active	18,659	542	2,132	6,838	5,694	871	0	219	0	50	7	32	1,757	518
% Std. Error	1.2	1.2	1.2	1.4	1.3	1.3		1.2		1.8	0.9	1.1	1.1	1.2
Est. % Active	84.7													

3.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 6			PRIMARY USE											
AIRCRAFT TYPE	Total Active	Public Use	Corp-orate	Busi-ness	Per-sonal	Instruc-tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours**	Air Taxi	Other
Piston: Other	70	0	0	0	9	0	0	0	0	0	0	0	8	53
Est. Active	4.0				5.1									5.9
% Std. Error	32.6													
Est. % Active														
Piston: Total	162,963	1,669	3,392	29,513	105,066	10,301	3,438	2,496	8	988	192	185	2,351	3,366
Est. Active	1.9	2.0	1.9	2.1	2.1	1.9	1.6	2.0		2.3	1.8	2.0	1.8	2.0
% Std. Error	83.3													
Est. % Active														
Fixed Wing - Turboprop														
1 Engine: Total	1,033	0	195	326	113	0	324	0	0	0	0	0	53	8
Est. Active	0.3		0.4	0.4	0.3		0.3						0.4	
% Std. Error	96.5													
Est. % Active														
2 Eng: 1-12 Seats	4,071	253	1,691	1,160	219	13	0	0	0	3	0	0	651	82
Est. Active	0.9	0.9	0.9	1.1	0.7	0.7							1.0	1.3
% Std. Error	96.2													
Est. % Active														
2 Eng: 13+ Seats	1,005	45	561	16	14	0	0	5	0	23	0	0	255	85
Est. Active	0.5	0.5	0.6	0.5	0.6		0.6	0.6		0.7			0.5	0.5
% Std. Error	96.6													
Est. % Active														
2 Engine: Total	5,076	298	2,252	1,176	233	13	0	5	0	26	0	0	906	167
Est. Active	0.7	0.7	0.8	1.2	0.8	0.8		0.4	0.4				0.5	0.5
% Std. Error	96.3													
Est. % Active														

3.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 6

AIRCRAFT TYPE	PRIMARY USE												
	Total Active	Public Use	Corporate	Business	Personal	Instru-	Aerial	External	Other	Sight	Air		
						Apps	Obs	Load	Work	See**	Tours***	Taxi	Other
Turboprop: Other													
Est. Active	65	37	0	0	0	18	0	0	0	0	0	9	
% Std. Error	1.6	2.5											
Est. % Active	66.7												
Turboprop: Total													
Est. Active	6,174	335	2,448	1,502	345	13	342	20	0	26	0	959	
% Std. Error	0.7	0.7	0.7	1.0	0.7	0.8	0.6	0.7	0.4		0.7	184	
Est. % Active	95.9											0.5	
Fixed Wing - Turbojet													
2 Engine Turbojet													
Est. Active	5,513	199	4,294	217	161	0	30	0	0	12	0	512	
% Std. Error	1.3	1.4	1.4	1.9	1.2							88	
Est. % Active	87.9											1.4	
Turbojet: Other													
Est. Active	552	11	407	12	37	0	50	0	0	0	0	4	
% Std. Error	1.0	1.2	1.2	1.3	1.5							0.9	
Est. % Active	80.2												
Turbojet: Total													
Est. Active	6,066	210	4,701	228	198	0	81	0	0	12	0	515	
% Std. Error	1.2	1.5	1.3	1.8	1.2							119	
Est. % Active	87.1											0.9	
Fixed Wing: Total													
Est. Active	175,203	2,214	10,540	31,243	105,609	10,314	3,861	2,516	8	1,026	192	185	
% Std. Error	1.8	1.8	1.7	2.1	2.1	1.9	1.5	1.9	2.1		1.8	3,826	
Est. % Active	83.8											3,669	

3.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 6			PRIMARY USE												
AIRCRAFT TYPE	Total Active	Public Use	Corporate	Business	Personal	Instru- ctional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Tours**	Air Taxi	Other	
Rotorcraft															
Piston	2,545	185	60	201	743	518	361	244	52	10	107	5	3	55	
Est. Active	0.9	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3			1.2	
% Std. Error															
Est. % Active	71.5														
1 Eng: Turbine	4,038	1,480	263	229	351	28	214	318	168	17	49	117	667	137	
Est. Active	1.1	1.2	1.2	1.6	1.6	1.1	1.3	1.1	1.5	1.6	0.9	0.9	1.2	1.4	
% Std. Error															
Est. % Active	91.4														
Multi-Eng: Turbine	843	58	172	13	0	62	15	23	62	0	0	4	360	74	
Est. Active	1.4	1.4	1.5			1.8	2.0		1.7				1.7	1.4	
% Std. Error															
Est. % Active	78.3														
Turbine: Total	4,881	1,538	435	242	351	89	229	341	230	17	49	121	1,027	211	
Est. Active	1.2	1.2	1.2	1.6	1.6	1.4	1.3	1.2	1.5	1.6	0.9	0.9	1.3	1.3	
% Std. Error															
Est. % Active	88.8														
Rotorcraft: Total	7,425	1,723	494	443	1,094	608	590	586	282	27	155	127	1,030	266	
Est. Active	1.0	1.5	1.5	1.2	1.2	0.9	1.0	0.9	1.5	1.2	1.0	1.0	1.2	1.4	
% Std. Error															
Est. % Active	82.0														

3.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 5 OF 6		PRIMARY USE												
AIRCRAFT TYPE	Total Active	Public Use	Corp-orate	Busi-ness	Pers-sonal	Instruc-tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Tours***	Air Taxi	Other
Other Aircraft														
Gliders	2,105	12	0	42	1,732	159	0	0	0	0	21	0	0	137
Est. Active	1.5			4.1	1.7	1.7					1.6			2.2
% Std. Error														
Est. % Active	77.3													
Lighter-than-air	3,475	0	12	29	2,722	136	0	0	0	58	310	0	0	207
Est. Active	2.5		3.3	5.3	3.1	3.1				3.7	3.0			3.0
% Std. Error														
Est. % Active	60.8													
Other aircraft: Total	5,580	12	12	71	4,454	296	0	0	0	58	332	0	0	345
Est. Active	2.1		3.0	4.0	2.5	2.3				3.4	2.6			2.7
% Std. Error														
Est. % Active	66.1													
Experimental														
Amateur:														
Est. Active	13,189	43	9	522	11,418	139	0	25	23	0	0	0	0	1,011
% Std. Error	2.4	5.5	3.3	3.3	3.3	3.7		2.9						3.4
Est. % Active	54.6													
Exhibition:														
Est. Active	1,630	0	0	71	1,011	5	0	0	0	0	0	0	0	543
% Std. Error	3.0			3.6	3.4									4.6
Est. % Active	67.0													
Other:														
Est. Active	1,684	37	194	261	759	15	99	116	0	5	0	0	0	22
% Std. Error	1.7	1.8	1.9	2.1	1.9	2.3	1.6	2.7						175
Est. % Active	78.6													2.0

3.1 1998 GENERAL AVIATION AND AIR TAXI NUMBER OF AIRCRAFT BY PRIMARY USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 6 OF 6		PRIMARY USE												
AIRCRAFT TYPE	Total Active	Public Use	Corporate	Business	Personal	Instruc-tional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours***	Air Taxi	Other
Experimental: Total	16,502	80	203	853	13,189	158	99	141	23	5	0	0	22	1,730
Est. Active	2.4	3.5	3.0	3.2	3.1	3.4	2.6	3.5					3.1	3.5
% Std. Error														
Est. % Active	57.5													
Total All Aircraft	204,710	4,029	11,250	32,611	124,347	11,375	4,550	3,242	313	1,116	679	312	4,878	6,010
Est. Active	1.8	1.7	1.9	2.3	2.1	1.9	1.6	1.8	1.4	2.2	1.5	1.5	1.8	1.9
% Std. Error														
Est. % Active	80.2													

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

** Includes sightseeing performed under 14 CFR 91: General Operating and Flight Rules.

*** Includes air tours performed under 14 CFR 135: Air Taxi Operators and Commercial Operators.

3.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 4		ACTUAL USE												
AIRCRAFT TYPE	Total	Public Use	Corporate	Business	Personal	Institutional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours**	Air Taxi	Other
Fixed Wing														
Fixed Wing - Piston														
1 Eng: 1-3 Seats														
Est. Total Hours	4,988,744	97,320	3,007	187,549	1,886,952	1,404,156	963,469	142,724	1,479	88,747	26,279	400	161	186,514
% Std. Error	2.9	42.7	72.5	9.0	3.4	7.3	8.7	17.6	112.8	22.3	35.9	84.4	147.9	18.4
1 Eng: 4+ Seats														
Est. Total Hours	11,834,419	293,296	209,247	2,043,844	6,172,320	1,876,584	13,418	402,485	166	122,273	65,524	83,057	239,772	312,443
% Std. Error	1.9	23.1	15.7	3.3	2.2	6.4	66.6	16.1	213.4	21.6	23.2	31.3	19.7	22.6
1 Engine: Total														
Est. Total Hours	16,823,163	390,616	212,254	2,231,393	8,059,272	3,280,740	976,887	545,209	1,645	211,019	91,803	83,457	239,933	498,956
% Std. Error	1.6	20.0	15.0	3.0	1.9	4.8	9.1	12.5	106.1	15.5	19.2	30.2	19.1	15.4
2 Eng: 1-6 Seats														
Est. Total Hours	2,148,012	47,525	198,080	661,847	511,876	365,116	200	53,885	0	7,350	1,846	764	258,644	40,880
% Std. Error	3.5	25.3	13.9	4.8	4.1	4.1	18.3	73.6	30.1	59.7	54.9	42.6	17.7	24.3
2 Eng: 7+ Seats														
Est. Total Hours	1,418,984	105,652	252,820	200,387	156,694	83,390	139	14,013	0	1,720	658	20,555	488,844	94,112
% Std. Error	4.7	37.6	9.9	10.3	7.4	18.4	106.7	47.1	67.8	108.6	55.6	55.6	9.3	27.4
2 Engine: Total														
Est. Total Hours	3,566,996	153,178	450,900	862,234	668,569	448,506	339	67,898	0	9,070	2,504	21,319	747,488	134,992
% Std. Error	3.0	33.7	8.9	4.5	3.5	13.6	67.1	24.1	44.9	50.3	50.3	68.2	9.6	25.2
Piston: Other														
Est. Total Hours	11,420	0	0	0	332	93	0	0	0	0	0	0	5,122	5,873
% Std. Error	85.9				162.6	259.2							148.0	121.0
Piston: Total														
Est. Total Hours	20,401,578	543,794	663,154	3,093,627	8,728,173	3,729,339	977,226	613,107	1,645	220,089	94,307	104,776	992,543	639,820
% Std. Error	1.4	18.1	8.9	2.7	1.7	4.6	8.8	11.2	103.1	14.6	18.2	28.8	10.1	13.4
Fixed Wing - Turboprop														
1 Engine: Total														
Est. Total Hours	288,961	378	34,419	47,272	19,825	3,673	137,246	8,346	0	0	0	0	36,485	1,335
% Std. Error	7.9	114.9	21.7	15.0	22.8	26.7	16.0	77.3					40.8	61.0

3.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 4		ACTUAL USE												
AIRCRAFT TYPE	Total	Public Use	Corporate	Business	Personal	Instructional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours**	Air Taxi	Other
2 Eng: 1-12 Seats Est. Total Hours % Std. Error	1118606 5.5	66454 31.6	434818 10.5	200844 13.3	62218 18.0	8708 31.4	0	0	0	2221 296.7	176 70.4	0	292401 19.6	50766 47.8
2 Eng: 13+ Seats Est. Total Hours % Std. Error	340,521 5.0	12,004 32.9	183,348 8.3	4,385 37.8	4,968 30.5	2,771 19.9	0	675 79.0	0	10,416 42.6	0	0	116,708 13.0	5,247 74.0
2 Engine: Total Est. Total Hours % Std. Error	1,459,127 3.8	78,468 21.5	618,166 7.1	205,229 9.8	67,186 12.9	11,479 19.4	0	675 142.7	0	12,637 74.2	176 51.4	0	409,109 12.2	56,013 34.0
Turboprop: Other Est. Total Hours % Std. Error	16,781 50.2	13,656 65.3	0	0	0	0	0	2,264 54.7	0	0	0	0	0	861 83.4
Turboprop: Total Est. Total Hours % Std. Error	1,764,869 3.4	92,491 21.9	652,584 6.8	252,501 8.4	87,011 11.3	15,152 16.0	139,510 19.7	9,021 80.3	0	12,637 72.2	176 50.0	0	445,593 11.6	58,209 32.0
Fixed Wing - Turboprop														
2 Engine Turboprop Est. Total Hours % Std. Error	1,994,778 5.1	141,104 50.4	1,515,374 5.3	28,049 26.2	29,914 25.5	4,030 43.4	2,744 75.9	0	0	4,223 103.9	0	0	229,422 19.7	39,919 45.0
Turboprop: Other Est. Total Hours % Std. Error	231,237 12.0	29,178 71.9	164,931 13.0	4,179 68.9	8,187 31.6	419 45.1	17,829 35.1	0	0	0	0	0	1,363 71.8	5,151 90.2
Turboprop: Total Est. Total Hours % Std. Error	2,226,014 4.6	170,282 42.8	1,680,305 4.8	32,228 25.3	38,101 21.4	4,449 36.0	20,573 52.9	0	0	4,223 93.5	0	0	230,785 17.7	45,070 39.7
Fixed Wing: Total Est. Total Hours % Std. Error	24,392,462 1.4	806,567 16.8	2,996,043 5.4	3,378,356 2.6	8,853,285 1.7	3,748,939 4.5	1,137,308 8.2	622,128 11.0	1,645 100.9	236,948 14.4	94,483 17.8	104,776 28.2	1,668,921 8.0	743,100 12.2

3.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 4

AIRCRAFT TYPE	ACTUAL USE													
	Total	Public Use	Corporate	Business	Personal	Institutional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours**	Air Taxi	Other
Rotorcraft														
Piston	429,978	52,672	9,138	16,610	47,825	135,882	74,587	48,316	12,828	1,513	15,083	4,198	9,696	35.7
Est. Total Hours	4.5	17.5	29.9	16.8	8.5	10.4	11.8	13.0	30.0	39.4	16.2	78.0	38.0	35.7
% Std. Error														
1 Eng. Turbine	1,415,157	478,206	67,488	25,350	33,080	7,666	59,057	106,757	40,090	4,605	22,090	71,207	462,904	36,689
Est. Total Hours	5.7	10.7	26.4	40.6	31.9	43.0	27.9	19.8	29.3	74.4	52.8	38.0	14.5	58.0
% Std. Error														
Multi-Eng. Turbine	497,069	22,767	63,553	18,884	4,708	22,645	4,374	11,320	66,740	0	3,040	3,449	246,621	28,967
Est. Total Hours	11.4	40.9	30.1	86.4	86.4	37.9	80.7	46.0	41.4		82.3	153.8	23.2	43.7
% Std. Error														
Turbine: Total	1,912,226	500,973	131,041	44,234	37,788	30,311	63,432	118,077	106,830	4,605	25,130	74,656	709,525	65,655
Est. Total Hours	5.2	10.6	20.0	42.7	30.0	30.2	26.8	18.6	27.8	75.0	47.8	37.2	12.4	37.7
% Std. Error														
Rotorcraft: Total	2,342,203	553,644	140,179	60,844	85,613	166,193	138,019	166,393	119,658	6,118	40,212	76,289	713,723	75,351
Est. Total Hours	3.3	7.3	13.6	23.0	11.5	12.5	12.4	10.7	18.2	42.3	22.8	26.1	9.0	24.2
% Std. Error														
Other Aircraft														
Gliders	125,315	26	15	1,425	88,479	24,218	0	97	0	114.2	71.6	4,400	0	6,648
Est. Total Hours	9.5	76.3	114.2	58.4	9.2	27.6		99.0						26.0
% Std. Error														
Lighter-than-air	169,409	0	689	1,270	83,482	3,186	0	0	0	41,666	28,095	827	0	10,195
Est. Total Hours	21.6		129.3	54.9	12.3	22.3				76.0	32.2	68.7		36.3
% Std. Error														
Other aircraft: Total	294,724	26	703	2,695	171,961	27,404	0	97	0	41,673	32,494	827	0	16,843
Est. Total Hours	12.3	90.5	115.7	43.5	8.0	29.4		117.2		69.4	27.9	62.8		23.4
% Std. Error														

3.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY ACTUAL USE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 4		ACTUAL USE													
AIRCRAFT TYPE	Total	Public Use	Corporate	Business	Personal	Institutional	Aerial Apps	Aerial Obs	External Load	Other Work	Sight See**	Air Tours***	Air Taxi	Other	
Experimental															
Amateur															
Est. Total Hours	729,116	1,084	5,550	48,571	578,199	12,023	0	4,567	27,098	48	135	0	0	51,841	
% Std. Error	3.8	94.1	107.3	17.3	3.1	23.3		52.3	71.4	88.4	113.3				15.2
Exhibition:															
Est. Total Hours	72,590	371	0	3,056	36,349	203	0	0	0	0	0	0	0	32,611	
% Std. Error	7.7	63.6		57.9	15.6	90.7									20.2
Other:															
Est. Total Hours	268,986	11,447	70,463	29,302	55,841	6,372	30,932	18,761	4,927	739	1,590	747	17,266	20,620	
% Std. Error	10.3	46.9	29.1	26.4	13.1	78.5	43.5	36.5	47.3	167.2	54.7	46.9	52.2		36.4
Experimental: Total															
Est. Total Hours	1,070,692	12,902	76,013	80,928	670,390	18,598	30,932	23,328	32,025	787	1,725	747	17,266	105,073	
% Std. Error	4.0	43.5	29.5	14.6	3.0	31.3	44.7	32.2	62.2	158.7	52.3	48.1	53.4		11.6
Total All Aircraft															
Est. Total Hours	28,100,081	1,373,139	3,212,939	3,522,823	9,781,249	3,961,134	1,306,259	811,946	153,328	285,527	168,914	182,639	2,399,910	940,367	
% Std. Error	1.3	10.7	4.8	2.4	1.4	4.0	7.1	8.7	29.8	16.1	14.8	24.7	7.1		9.6

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent standard error of 100% or greater.

** Includes sightseeing performed under 14 CFR 91: General Operating and Flight Rules.

*** Includes air tours performed under 14 CFR 135: Air Taxi Operators and Commercial Operators.

CHAPTER IV

FLYING CONDITIONS

4.1 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	DAY TOTAL		NIGHT TOTAL	
	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error
Fixed Wing				
Fixed Wing - Piston				
1 Eng: 1-3 Seats	4,116,266	3.2	409,177	6.3
1 Eng: 4+ Seats	10,007,384	2.1	1,255,622	3.2
1 Engine: Total	14,123,650	1.7	1,664,798	2.8
2 Eng: 1-6 Seats	1,591,545	4.0	366,764	8.1
2 Eng: 7+ Seats	937,668	4.9	337,662	8.2
2 Engine: Total	2,529,213	3.1	704,426	6.1
Piston: Other	8,721	88.3	1,659	129.1
Piston: Total	16,661,584	1.5	2,370,883	3.0
Fixed Wing - Turboprop				
1 Engine: Total	244,959	7.5	41,228	23.7
2 Eng: 1-12 Seats	830,098	5.0	283,022	10.1
2 Eng: 13+ Seats	144,692	7.4	84,549	11.0
2 Engine: Total	974,790	3.7	367,571	7.3
Turboprop: Other	11,006	49.2	7,501	111.1
Turboprop: Total	1,230,755	3.4	416,299	7.3

4.1 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3	DAY TOTAL			NIGHT TOTAL		
	Hours Flown	Percent Standard Error		Hours Flown	Percent Standard Error	
AIRCRAFT TYPE						
Fixed Wing - Turbojet						
2 Engine Turbojet	1,395,256	5.4		429,673	8.3	
Turbojet: Other	162,403	12.1		52,303	19.8	
Turbojet: Total	1,557,659	4.8		481,976	7.6	
Fixed Wing: Total	19,449,999	1.4		3,269,159	2.9	
Rotorcraft						
Piston	329,267	4.6		49,259	12.7	
1 Eng: Turbine	1,072,441	6.3		203,233	12.8	
Multi-Eng: Turbine	364,306	12.3		101,319	19.2	
Turbine: Total	1,436,747	5.7		304,552	10.8	
Rotorcraft: Total	1,766,014	3.6		353,812	7.1	
Other Aircraft						
Gliders	109,836	9.2		676	32.5	
Lighter-than-air	132,899	21.0		21,046	44.0	
Other aircraft: Total	242,735	11.6		21,722	39.0	

4.1 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	PAGE 3 OF 3		DAY TOTAL		NIGHT TOTAL	
	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error
Experimental						
Amateur:	649,506	3.9			35,755	13.0
Exhibition:	65,643	10.6			1,887	39.5
Other:	223,521	10.5			30,573	26.0
Experimental: Total	938,670	4.0			68,215	13.8
Total All Aircraft	22,397,418	1.3			3,712,907	2.7

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent Standard Error of 100% or greater.

4.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER VMC CONDITIONS BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	VMC DAY			VMC NIGHT			VMC TOTAL	
	Hours Flown	Percent Standard Error						
Fixed Wing								
Fixed Wing - Piston								
1 Eng: 1-3 Seats	4,077,259	3.2	401,095	6.2	4,478,354	3.3		
1 Eng: 4+ Seats	9,462,114	2.2	1,123,686	3.2	10,585,800	2.1		
1 Engine: Total	13,539,374	1.8	1,524,780	2.9	15,064,154	1.8		
2 Eng: 1-6 Seats	1,349,895	4.4	266,110	7.2	1,616,005	4.6		
2 Eng: 7+ Seats	784,903	5.4	229,860	7.9	1,014,763	5.3		
2 Engine: Total	2,134,799	3.5	495,970	5.7	2,630,768	3.5		
Piston: Other	6,848	101.6	1,217	141.3	8,065	96.1		
Piston: Total	15,681,020	1.6	2,021,967	2.7	17,702,988	1.6		
Fixed Wing - Turboprop								
1 Engine: Total	218,784	8.5	28,341	23.3	247,125	8.1		
2 Eng: 1-12 Seats	650,504	5.6	177,409	12.1	827,913	6.0		
2 Eng: 13+ Seats	105,024	8.0	51,646	11.9	156,670	7.6		
2 Engine: Total	755,528	4.1	229,056	8.4	984,583	4.3		
Turboprop: Other	10,120	49.0	3,842	108.2	13,962	45.2		
Turboprop: Total	984,431	3.8	261,239	8.0	1,245,670	3.8		

4.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER VMC CONDITIONS BY DAY/NIGHT
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	VMC DAY			VMC NIGHT			VMC TOTAL
	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	
Fixed Wing - Turbojet							
2 Engine Turbojet	1,056,449	5.9	234,849	9.8	1,291,299	6.0	
Turbojet: Other	135,045	12.8	30,213	21.1	165,258	13.8	
Turbojet: Total	1,191,494	5.3	265,063	8.8	1,456,557	5.4	
Fixed Wing: Total	17,856,945	1.5	2,548,269	2.7	20,405,215	1.5	
Rotorcraft							
Piston	328,729	4.6	47,549	12.7	376,277	4.8	
1 Eng: Turbine	1,063,371	6.3	202,054	12.8	1,265,425	6.0	
Multi-Eng: Turbine	359,782	12.3	100,557	19.3	460,339	12.8	
Turbine: Total	1,423,153	5.7	302,612	10.8	1,725,765	5.6	
Rotorcraft: Total	1,751,882	3.6	350,160	7.2	2,102,042	3.6	
Other Aircraft							
Gliders	108,004	9.1	676	32.5	108,680	9.1	
Lighter-than-air	132,899	21.0	21,018	44.0	153,916	23.4	
Other aircraft: Total	240,903	11.6	21,693	39.0	262,596	13.3	

4.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER VMC CONDITIONS BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3	VMC DAY			VMC NIGHT			VMC TOTAL	
	AIRCRAFT TYPE	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown
Experimental								
Amateur:	645,324	3.9		34,608	13.2		679,931	4.1
Exhibition:	65,180	10.7		1,887	39.5		67,067	10.5
Other:	202,020	11.0		18,839	24.1		220,859	10.8
Experimental: Total	912,524	3.9		55,334	12.0		967,857	4.1
Total All Aircraft	20,762,254	1.3		2,975,456	2.6		23,737,710	1.4

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent Standard Error of 100% or greater.

4.3 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER IMC CONDITIONS BY DAY/NIGHT
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	IMC DAY			IMC NIGHT			IMC TOTAL		
	Hours Flown	Percent Standard Error	Hours Flown						
Fixed Wing									
Fixed Wing - Piston									
1 Eng: 1-3 Seats	39,007	35.5	8,351	30.1	47,358	30.4			
1 Eng: 4+ Seats	545,270	4.2	105,603	8.5	650,873	4.2			
1 Engine: Total	584,276	4.5	113,955	8.0	698,231	4.4			
2 Eng: 1-6 Seats	241,649	6.0	91,010	9.6	332,659	6.3			
2 Eng: 7+ Seats	152,765	6.1	77,642	9.7	230,407	6.4			
2 Engine: Total	394,414	4.4	168,652	7.1	563,066	4.6			
Piston: Other	1,873	149.4	1,295	162.0	3,168	154.2			
Piston: Total	980,564	3.5	283,901	6.2	1,264,466	3.6			
Fixed Wing - Turboprop									
1 Engine: Total	26,176	24.3	7,359	28.7	33,535	21.8			
2 Eng: 1-12 Seats	179,594	8.3	71,908	9.2	251,502	7.4			
2 Eng: 13+ Seats	39,668	12.2	22,674	11.2	62,343	10.0			
2 Engine: Total	219,263	6.4	94,582	7.1	313,845	5.6			
Turboprop: Other	886	65.0	1,933	107.8	2,818	88.0			
Turboprop: Total	246,324	6.3	103,874	7.2	350,199	5.6			

4.3 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER IMC CONDITIONS BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3	IMC DAY			IMC NIGHT			IMC TOTAL	
	Hours Flown	Percent Standard Error						
AIRCRAFT TYPE								
Fixed Wing - Turbojet								
2 Engine Turbojet	338,807	12.7	149,199	12.7	488,007	12.4		
Turbojet: Other	27,358	17.4	17,913	16.7	45,271	15.7		
Turbojet: Total	366,165	10.8	167,112	10.6	533,277	10.5		
Fixed Wing: Total	1,593,053	4.1	554,898	5.5	2,147,942	4.2		
Rotorcraft								
Piston	538	54.7	44	78.6	582	54.3		
1 Eng: Turbine	9,070	56.7	0		9,070	56.7		
Multi-Eng: Turbine	4,524	48.9	964	57.8	5,488	50.1		
Turbine: Total	13,594	41.2	964	58.8	14,558	40.1		
Rotorcraft: Total	14,132	28.6	1,008	40.6	15,140	27.9		
Other Aircraft								
Gliders	1,832	143.0	0		1,832	143.0		
Lighter-than-air	0		0		0		0	
Other aircraft: Total	1,832	169.8	0		1,832	169.8		

4.3 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER IMC CONDITIONS BY DAY/NIGHT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	IMC DAY			IMC NIGHT			IMC TOTAL		
	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown
Experimental									
Amateur:	4,182	28.2	489	48.1			4,671	29.5	
Exhibition:	464	63.9	152	117.0			615	59.1	
Other:	21,500	27.0	9,328	40.8			30,828	29.6	
Experimental: Total	26,146	23.3	9,968	38.3			36,115	26.1	
Total All Aircraft	1,635,164	3.7	565,864	5.1			2,201,028	3.8	

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent Standard Error of 100% or greater.

4.4 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN BY DAY/NIGHT
 BY REGION OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

REGION	DAY TOTAL		NIGHT TOTAL	
	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error
Alaskan	641,960	9.9	47,235	54.0
Central	1,139,717	5.1	216,707	8.3
Eastern	2,713,908	3.9	442,376	8.1
Great Lakes	3,734,161	3.3	633,364	6.4
New England	833,741	5.4	123,046	9.1
Northwest Mt.	2,468,000	4.4	344,499	10.3
Southern	4,112,564	2.4	756,705	5.0
Southwestern	3,438,535	3.6	525,236	7.2
Western-Pacific	3,314,832	3.5	623,740	7.5
Total	22,397,418	1.3	3,712,907	2.7

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent Standard Error of 100% or greater.

4.5 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER VMC CONDITIONS BY DAY/NIGHT
 BY REGION OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

REGION	PAGE 1 OF 1		VMC DAY		VMC NIGHT		VMC TOTAL	
	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error	Hours Flown	Percent Standard Error
Alaskan	631,720	9.6	37,494	37.7	669,214	9.8		
Central	1,049,255	5.2	171,779	8.3	1,221,034	5.4		
Eastern	2,459,734	4.2	347,969	7.9	2,806,703	4.4		
Great Lakes	3,383,289	3.5	488,312	5.8	3,871,601	3.4		
New England	739,434	4.7	100,306	8.0	839,740	4.7		
Northwest Mt.	2,355,240	4.6	273,382	8.7	2,628,622	4.5		
Southern	3,728,023	2.5	585,691	5.1	4,313,714	2.6		
Southwestern	3,246,968	3.8	433,663	7.8	3,680,631	3.9		
Western-Pacific	3,169,592	3.6	536,859	7.3	3,706,451	3.6		
Total	20,762,254	1.3	2,975,456	2.6	23,737,710	1.4		

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent Standard Error of 100% or greater.

4.6 1998 GENERAL AVIATION AND AIR TAXI TOTAL HOURS FLOWN UNDER IMC CONDITIONS BY DAY/NIGHT
 BY REGION OF BASED AIRCRAFT
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 1	IMC DAY			IMC NIGHT			IMC TOTAL		
	Hours Flown	Percent Standard Error	Hours Flown						
REGION									
Alaskan	10,240	58.5	4,536	94.2	14,777	65.1			
Central	90,463	10.4	31,566	14.3	122,029	10.3			
Eastern	255,175	8.3	80,185	12.2	335,359	8.3			
Great Lakes	350,872	8.6	122,076	11.4	472,948	8.4			
New England	94,307	30.1	37,583	34.3	131,891	30.9			
Northwest Mt.	112,760	11.1	49,005	16.4	161,764	11.2			
Southern	384,541	5.2	118,503	7.2	503,043	5.2			
Southwestern	191,567	7.9	67,378	11.0	258,945	7.9			
Western-Pacific	145,240	8.7	55,032	13.6	200,272	9.2			
Total	1,635,164	3.7	565,864	5.1	2,201,028	3.8			

Note: Row and column summations may differ from printed totals due to estimation procedures.

*Percent Standard Error of 100% or greater.

4.7 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	IFR FLIGHT PLANS				VFR FLIGHT PLANS			
	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error
Fixed Wing								
Fixed Wing - Piston								
1 Eng: 1-3 Seats	1,825	21.2	143,012	21.7	12,316	7.4	855,207	7.0
1 Eng: 4+ Seats	38,867	6.4	1,843,652	3.8	45,589	5.6	2,484,922	4.0
1 Engine: Total	40,692	7.7	1,986,664	3.8	57,906	6.0	3,340,129	3.4
2 Eng: 1-6 Seats	8,716	3.6	911,895	5.8	4,207	6.7	220,205	10.0
2 Eng: 7+ Seats	4,329	2.1	661,754	5.8	2,310	3.9	253,547	10.5
2 Engine: Total	13,044	3.0	1,573,648	4.3	6,517	5.5	473,751	8.3
Piston: Other	14	10.6	4,665	149.6	23	8.0	5,932	130.0
Piston: Total	53,750	6.7	3,564,977	3.3	64,446	5.9	3,819,812	3.1
Fixed Wing - Turboprop								
1 Engine: Total	630	2.5	92,133	14.0	232	5.6	31,307	32.2
2 Eng: 1-12 Seats	3,651	1.8	831,038	5.5	1,230	7.1	106,612	26.7
2 Eng: 13+ Seats	592	1.5	169,424	8.1	195	3.7	31,785	19.5
2 Engine: Total	4,243	1.6	1,000,462	4.1	1,425	5.4	138,397	17.1
Turboprop: Other	46	2.4	12,449	72.4	44	2.5	2,509	47.4
Turboprop: Total	4,918	1.8	1,105,045	4.1	1,701	5.3	172,213	14.8

4.7 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 4 OF 6	NO FLIGHT PLANS				OTHER/UNKNOWN FLIGHT PLANS				TOTAL FLIGHT PLANS			
	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error
Fixed Wing												
Fixed Wing - Piston												
1 Eng: 1-3 Seats	26,019	4.3	2,292,922	4.3	3,078	16.2	186,514	19.0	43,239	3.4	3,477,655	3.7
1 Eng: 4+ Seats	69,427	3.7	4,388,438	2.6	5,351	20.6	312,443	23.0	159,234	2.4	9,029,455	2.1
1 Engine: Total	95,446	3.8	6,681,360	2.2	8,429	18.8	498,956	15.8	202,473	2.7	12,507,110	1.8
2 Eng: 1-6 Seats	7,183	4.4	502,175	10.6	972	15.8	40,880	25.3	21,078	2.5	1,675,155	4.6
2 Eng: 7+ Seats	2,809	3.4	151,049	9.5	674	8.5	94,112	26.4	10,121	1.7	1,160,461	5.2
2 Engine: Total	9,992	3.9	653,224	7.6	1,646	12.6	134,992	24.4	31,200	2.2	2,835,616	3.6
Piston: Other	46	5.4	541	116.2	56	4.7	5,873	121.0	138	4.2	17,010	90.4
Piston: Total	105,483	3.8	7,335,125	2.1	10,131	17.8	639,820	13.5	233,811	2.7	15,359,735	1.7
Fixed Wing - Turboprop												
1 Engine: Total	659	2.3	120,474	15.2	88	9.8	1,335	58.8	1,608	1.0	245,249	8.3
2 Eng: 1-12 Seats	1,746	5.4	66,435	16.7	206	20.0	50,766	46.8	6,832	1.7	1,054,952	6.6
2 Eng: 13+ Seats	189	3.8	12,651	29.1	125	4.8	5,247	74.0	1,101	1.2	219,107	7.8
2 Engine: Total	1,935	4.3	79,086	13.2	330	12.6	56,013	33.4	7,932	1.4	1,273,958	4.7
Turboprop: Other	18	4.8	1,822	54.7	9	7.1	861	83.4	119	1.6	17,642	47.1
Turboprop: Total	2,612	3.9	201,382	12.2	428	11.9	58,209	31.4	9,659	1.4	1,536,849	4.1

4.7 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	IFR FLIGHT PLANS			VFR FLIGHT PLANS		
	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error
Fixed Wing - Turbojet						
2 Engine Turbojet	4,769	2.1	1,611,122	5.3	431	13.9
Turbojet: Other	394	1.6	160,723	13.7	50	6.8
Turbojet: Total	5,163	2.0	1,771,846	4.8	480	12.4
Fixed Wing: Total	63,832	6.2	6,441,868	3.1	66,627	6.0
Rotorcraft						
Piston	63	10.1	10,363	31.8	616	3.0
1 Eng: Turbine	181	14.1	19,255	39.1	1,583	3.9
Multi-Eng: Turbine	187	6.6	10,575	32.6	399	3.9
Turbine: Total	368	10.9	29,831	27.9	1,982	3.9
Rotorcraft: Total	431	8.9	40,194	18.4	2,598	3.1
Other Aircraft					809,724	7.4
Gliders	57	17.8	8,280	68.4	306	7.3
Lighter-than-air	128	20.9	10,182	53.6	863	7.5
Other aircraft: Total	186	19.7	18,461	45.2	1,169	7.4
					38,377	13.9

**4.7 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN
BY AIRCRAFT TYPE**
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 5 OF 6	NO FLIGHT PLANS				OTHER/UNKNOWN FLIGHT PLANS				TOTAL FLIGHT PLANS				
	AIRCRAFT TYPE	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error
Fixed Wing - Turbojet													
2 Engine Turbojet	1,102	8.2	31,725	24.4	369	15.1	39,919	43.5	6,670	2.0	1,711,986	5.2	
Turbojet: Other	109	4.3	19,430	31.0	71	5.6	5,151	86.0	624	1.2	187,000	12.1	
Turbojet: Total	1,211	7.3	51,155	24.3	440	13.0	45,070	38.3	7,294	1.8	1,898,986	4.7	
Fixed Wing: Total	109,306	3.9	7,587,662	2.1	10,998	17.3	743,100	12.2	250,764	2.6	18,795,570	1.6	
Rotorcraft													
Piston	1,491	1.6	225,297	6.2	203	5.5	9,696	33.8	2,373	1.3	299,205	5.4	
1 Eng: Turbine	1,768	3.6	463,437	10.2	305	10.7	36,689	55.7	3,838	1.8	1,062,776	7.2	
Multi-Eng: Turbine	224	5.9	115,688	28.3	122	8.4	28,967	44.2	932	2.6	367,709	16.2	
Turbine: Total	1,992	3.9	579,125	9.9	427	10.1	65,655	36.7	4,770	2.0	1,430,485	6.8	
Rotorcraft: Total	3,483	2.5	804,422	5.6	630	7.3	75,351	23.5	7,143	1.5	1,729,690	4.3	
Other Aircraft													
Gliders	1,462	2.4	76,336	11.2	252	8.2	6,648	25.2	2,077	1.9	102,069	9.9	
Lighter-than-air	1,876	4.5	107,251	31.4	338	12.6	10,195	35.0	3,205	3.2	155,199	23.4	
Other aircraft: Total	3,338	3.6	188,587	17.6	590	10.8	16,843	22.6	5,283	2.7	257,268	13.7	

4.7 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

AIRCRAFT TYPE	IFR FLIGHT PLANS				VFR FLIGHT PLANS			
	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error
Experimental								
Amateur:	648	16.3	27,365	27.0	3,122	7.0	115,344	9.3
Exhibition:	96	20.9	1,101	56.0	532	8.0	13,067	28.3
Other:	705	4.4	110,353	20.6	415	6.3	23,469	29.7
Experimental: Total	1,449	12.2	138,820	18.7	4,069	6.9	151,881	8.8
Total All Aircraft	65,898	6.2	6,639,342	2.8	74,463	5.7	5,022,922	3.2

4.7 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 6 OF 6	NO FLIGHT PLANS				OTHER/UNKNOWN FLIGHT PLANS				TOTAL FLIGHT PLANS				
	AIRCRAFT TYPE	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error	Number Active Aircraft	Percent Standard Error	Hours Flown	Percent Standard Error
Experimental													
Amateur:	8,889	3.5	471,054	5.6	1,977	9.1	51,841	15.3	14,636	2.9	665,605	4.6	
Exhibition:	1,191	4.3	49,638	12.6	546	7.9	32,611	21.3	2,365	3.6	96,418	12.3	
Other:	971	3.4	72,257	19.8	351	7.0	20,620	35.4	2,442	2.0	226,700	11.8	
Experimental: Total	11,051	3.6	592,949	5.2	2,874	8.4	105,073	11.6	19,443	2.9	988,722	4.5	
Total All Aircraft	127,178	3.7	9,168,620	1.9	15,093	14.6	940,367	9.6	282,633	2.5	21,771,251	1.5	

CHAPTER V

FUEL CONSUMPTION

5.1 1998 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 3

AIRCRAFT TYPE	Average Rate GPH	Estimated Fuel Use (mil gal)	Percent Standard Error
Fixed Wing			
Fixed Wing - Piston			
1 Eng: 1-3 Seats	9.2	46.9	3.0
1 Eng: 4+ Seats	11.4	134.9	2.0
1 Engine: Total	10.7	181.8	1.6
2 Eng: 1-6 Seats	28.6	57.1	4.1
2 Eng: 7+ Seats	37.5	49.8	4.7
2 Engine: Total	31.4	106.9	3.5
Piston: Other	238.7	2.7	85.9
Piston: Total	13.2	291.5	2.1
Fixed Wing - Turboprop			
1 Engine: Total	55.7	15.7	7.4
2 Eng: 1-12 Seats	84.6	94.9	5.2
2 Eng: 13+ Seats	102.9	37.6	4.7
2 Engine: Total	88.3	132.5	3.8
Turboprop: Other	54.4	0.9	50.2
Turboprop: Total	82.5	149.1	3.5

5.1 1998 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3

AIRCRAFT TYPE	Average Rate GPH	Estimated Fuel Use (mil gal)	Percent Standard Error
Fixed Wing - Turbojet			
2 Engine Turbojet	269.5	525.0	4.9
Turbojet: Other	343.2	83.7	10.5
Turbojet: Total	276.2	608.8	4.6
Fixed Wing: Total	24.7	1,049.3	4.7
Rotorcraft			
Piston	14.0	6.5	3.8
1 Eng: Turbine	24.3	36.8	5.0
Multi-Eng: Turbine	42.7	20.0	12.4
Turbine: Total	27.5	56.8	5.4
Rotorcraft: Total	22.9	63.3	3.7
Other Aircraft			
Gliders	0.0	0.0	
Lighter-than-air	0.0	0.0	
Other aircraft: Total	0.0	0.0	

5.1 1998 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY AIRCRAFT TYPE
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3

AIRCRAFT TYPE	Average Rate GPH	Estimated Fuel Use (mil gal)	Percent Standard Error
<hr/>			
Experimental			
Amateur:	13.9	9.5	4.2
Exhibition:	12.5	0.6	12.6
Other:	12.4	3.4	10.0
Experimental: Total	13.7	13.4	4.5
<hr/>			
Total All Aircraft	23.8	1,126.0	4.1

Note: Row and column summations may differ from printed totals due to estimation procedures.

CHAPTER VI

AIRFRAME HOURS

6.1 1998 GENERAL AVIATIONS AND AIR TAXI TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 3		Aircraft Population Size	Estimate of Number Active	Percent Standard Error	Estimate of Percent Active	Percent Standard Error	Estimate of Total Airframe Hours	Percent Standard Error	Estimate of Average Airframe Hours	Percent Standard Error
Fixed Wing										
Fixed Wing - Piston										
1 Eng: 1-3 Seats	59,408	41,753	2.5	70.3	2.5	164,406,786	2.2	3,937.6	1.5	
1 Eng: 4+ Seats	114,030	102,480	1.5	89.9	1.5	325,973,717	1.4	3,180.8	1.3	
1 Engine: Total	173,438	144,234	1.9	83.2	1.9	490,380,503	1.2	3,399.9	1.0	
2 Eng: 1-6 Seats	15,233	12,822	1.8	84.2	1.8	47,168,042	2.8	3,678.6	2.4	
2 Eng: 7+ Seats	6,800	5,837	1.1	85.8	1.1	33,794,979	5.0	5,789.8	4.3	
2 Engine: Total	22,033	18,659	1.5	84.7	1.5	80,963,021	3.1	4,339.0	2.6	
Piston: Other	214	70	4.0	32.6	4.0	2,839,733	17.3	40,694.0	5.7	
Piston: Total	195,685	162,963	1.9	83.3	1.9	574,183,258	1.1	3,523.4	0.9	
Fixed Wing - Turboprop										
1 Engine: Total	1,071	1,033	0.6	96.5	0.6	2,010,781	13.4	1,945.8	12.9	
2 Eng: 1-12 Seats	4,231	4,071	0.9	96.2	0.9	18,430,794	5.7	4,527.4	5.5	
2 Eng: 13+ Seats	1,041	1,005	0.3	96.6	0.3	7,873,291	8.8	7,833.0	8.5	
2 Engine: Total	5,271	5,076	0.6	96.3	0.6	26,304,085	5.7	5,182.0	5.5	
Turboprop: Other	97	65	1.6	66.7	1.6	1,079,560	13.7	16,691.0	9.1	
Turboprop: Total	6,440	6,174	0.7	95.9	0.7	29,394,426	5.4	4,760.9	5.1	

6.1 1998 GENERAL AVIATIONS AND AIR TAXI TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3	AIRCRAFT TYPE	Aircraft Population Size	Estimate of Number Active	Percent Standard Error	Estimate of Percent Active	Percent Standard Error	Estimate of Total Airframe Hours	Percent Standard Error	Estimate of Average Airframe Hours	Percent Standard Error
	Fixed Wing - Turbojet									
2	2 Engine Turbojet	6,275	5,513	1.4	87.9	1.4	27,312,219	4.8	4,953.8	4.2
	Turbojet: Other	689	552	0.9	80.2	0.9	4,766,704	16.6	8,629.1	13.3
	Turbojet: Total	6,964	6,066	1.3	87.1	1.3	32,078,923	5.6	5,288.5	4.9
	Fixed Wing: Total	209,089	175,203	1.8	83.8	1.8	635,656,607	1.1	3,628.1	0.9
	Rotorcraft									
6	Piston	3,560	2,545	0.9	71.5	0.9	10,451,874	3.1	4,107.4	2.2
	1 Eng: Turbine	4,419	4,038	0.9	91.4	0.9	18,389,233	4.8	4,554.1	4.4
	Multi-Eng: Turbine	1,076	843	1.6	78.3	1.6	6,705,843	9.1	7,958.4	7.1
	Turbine: Total	5,495	4,881	1.0	88.8	1.0	25,095,077	4.3	5,141.9	3.9
	Rotorcraft: Total	9,055	7,425	0.9	82.0	0.9	35,546,951	2.5	4,787.3	2.1
	Other Aircraft									
	Gliders	2,723	2,105	1.4	77.3	1.4	3,121,101	6.6	1,482.9	5.1
	Lighter-than-air	5,718	3,475	2.5	60.8	2.5	2,089,747	24.8	601.3	15.1
	Other aircraft: Total	8,441	5,580	2.1	66.1	2.1	5,210,848	10.6	933.8	7.0

6.1 1998 GENERAL AVIATIONS AND AIR TAXI TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3		Aircraft Population Size	Estimate of Number Active	Percent Standard Error	Estimate of Percent Active	Percent Standard Error	Estimate of Total Airframe Hours	Percent Standard Error	Estimate of Average Airframe Hours	Percent Standard Error
Experimental										
Amateur:	24,151	13,189	2.5	54.6	2.5	7,251,539	3.9	549.8	2.1	
Exhibition:	2,431	1,630	3.0	67.0	3.0	4,451,130	13.3	2,731.3	8.9	
Other:	2,141	1,684	1.6	78.6	1.6	5,611,971	11.3	3,333.5	8.9	
Experimental: Total	28,723	16,502	2.4	57.5	2.4	17,314,640	5.2	1,049.2	3.0	
Total All Aircraft	255,309	204,710	1.8	80.2	1.8	693,729,045	1.0	3,388.8	0.8	

Note: Row and column summations may differ from printed totals due to estimation procedures.

* Percent Standard Error of 100% or greater.

CHAPTER VII

LANDING GEAR SYSTEMS

7.1 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, AND TOTAL NUMBER OF AIRCRAFT
WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
BY AIRCRAFT MANUFACTURE/MODEL GROUP
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 3

AIRCRAFT TYPE	Aircraft Population Size	Estimate of Number Active	Percent Standard Error	Estimate of Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retractable Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retractable Landing Gear	Percent Standard Error	Percent Standard Error
												Active Aircraft w/ Retractable Landing Gear
Fixed Wing												
Fixed Wing - Piston												
1 Eng: 1-3 Seats	59,408	41,753	2.5	39,837	1.0	95.4	0.7	1,916	20.6	4.6	14.4	
1 Eng: 4+ Seats	114,050	102,480	1.5	65,974	3.6	64.4	3.2	36,506	6.5	35.6	5.8	
1 Engine: Total	173,438	144,234	1.9	105,812	2.8	73.4	2.3	38,422	7.7	26.6	6.4	
2 Eng: 1-6 Seats	15,233	12,822	1.8	312	28.5	2.4	24.0	12,510	0.7	97.6	0.6	
2 Eng: 7+ Seats	6,800	5,837	1.1	245	14.6	4.2	12.5	5,592	0.6	95.8	0.5	
2 Engine: Total	22,033	18,659	1.5	557	22.1	3.0	18.7	18,102	0.7	97.0	0.6	
Piston: Other	214	70	4.0	26	6.3	37.8	2.1	43	3.8	62.2	1.2	
Piston: Total	195,685	162,963	1.9	106,395	3.3	65.3	2.8	56,568	6.2	34.7	5.2	
Fixed Wing - Turboprop												
1 Engine: Total	1,071	1,033	0.6	455	3.4	44.0	3.3	578	2.7	56.0	2.6	
2 Eng: 1-12 Seats	4,231	4,071	0.9	222	19.1	5.5	18.4	3,849	1.1	94.5	1.1	
2 Eng: 13+ Seats	1,041	1,005	0.3	78	6.2	7.8	6.0	927	0.5	92.2	0.5	
2 Engine: Total	5,271	5,076	0.6	300	13.3	5.9	12.8	4,776	0.8	94.1	0.8	
Turboprop: Other	97	65	1.6	0	0.0	0.0	0.0	65	65	100.0		
Turboprop: Total	6,440	6,174	0.7	755	8.7	12.2	8.3	5,419	1.2	87.8	1.2	1.2

7.1 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, AND TOTAL NUMBER OF AIRCRAFT
 WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
 BY AIRCRAFT MANUFACTURER/MODEL GROUP
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3		Aircraft Population Size	Estimate of Number Active	Percent Standard Error	Estimate of Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retrac Landing Gear	Percent Standard Error
Fixed Wing - Turbojet												
2 Engine Turbojet	6,275	5,513	1.4		353	15.4	6.4	13.5	5,160	1.1	93.6	0.9
Turbojet: Other	689	552	0.9		58	6.1	10.6	4.9	494	0.7	89.4	0.6
Turbojet: Total	6,964	6,066	1.3		412	13.4	6.8	11.7	5,654	1.0	93.2	0.8
Fixed Wing: Total	209,089	175,203	1.8		107,562	3.5	61.4	3.0	67,641	5.6	38.6	4.7
Rotorcraft												
Piston	3,560	2,545	0.9		2,517	0.2	98.9	0.1	28	15.2	1.1	10.9
1 Eng: Turbine	4,419	4,038	0.9		4,031	0.1	99.8	0.1	7	72.4	0.2	66.1
Multi-Eng: Turbine	1,076	843	1.6		674	1.7	80.0	1.3	169	6.8	20.0	5.3
Turbine: Total	5,495	4,881	1.0		4,705	0.6	96.4	0.5	176	16.1	3.6	14.3
Rotorcraft: Total	9,055	7,425	0.9		7,222	0.4	97.3	0.3	204	13.1	2.7	10.7
Other Aircraft												
Gliders	2,723	2,105	1.4		1,127	2.8	53.5	2.1	978	3.2	46.5	2.5
Lighter-than-air	5,718	3,475	2.5		3,475	100.0	0	0	0	0.0	0.0	0.0
Other aircraft: Total	8,441	5,580	2.1		4,602	1.7	82.5	1.1	978	7.9	17.5	5.2

7.1 1998 GENERAL AVIATION AND AIR TAXI POPULATION SIZE, ACTIVE AIRCRAFT, AND TOTAL NUMBER OF AIRCRAFT
 WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
 BY AIRCRAFT MANUFACTURER/MODEL GROUP
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3

AIRCRAFT TYPE	Aircraft Population Size	Estimate of Number Active	Percent Standard Error	Estimate of Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Active Aircraft w/ Retrac Landing Gear	Percent Standard Error
Experimental											
Amateur:	24,151	13,189	2.5	10,942	1.7	83.0	0.9	2,247	8.1	17.0	4.4
Exhibition:	2,431	1,630	3.0	482	8.0	29.6	5.4	1,148	3.4	70.4	2.3
Other:	2,141	1,684	1.6	647	4.4	38.5	3.5	1,036	2.8	61.5	2.2
Experimental: Total	28,723	16,502	2.4	12,072	2.2	73.2	1.3	4,431	6.1	26.8	3.5
Total All Aircraft	255,309	204,710	1.8	131,458	3.0	64.2	2.4	73,253	5.5	35.8	4.4

**7.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL ANNUAL HOURS AND PERCENT HOURS FLOWN
 WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
 BY AIRCRAFT TYPE**
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 3

AIRCRAFT TYPE	Estimate of Annual Hours Flown	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Retrac Landing Gear	Percent Standard Error											
Fixed Wing																					
Fixed Wing - Piston																					
1 Eng: 1-3 Seats	4,988,744	2.9	4,826,324	1.9	96.7	1.9	162,420	20.3	3.3	20.3											
1 Eng: 4+ Seats	11,834,419	1.9	7,784,749	3.4	65.8	3.4	4,049,670	6.2	34.2	6.2											
1 Engine: Total	16,823,163	1.6	12,611,073	2.8	75.0	2.8	4,212,090	7.0	25.0	7.0											
2 Eng: 1-6 Seats	2,148,012	3.5	62,446	20.8	2.9	20.8	2,085,567	1.4	97.1	1.4											
2 Eng: 7+ Seats	1,418,984	4.7	88,483	8.7	6.2	8.7	1,330,501	1.0	93.8	1.0											
2 Engine: Total	3,566,996	3.0	150,929	13.7	4.2	13.7	3,416,067	1.2	95.8	1.2											
Piston: Other	11,420	85.9	9,757	1.1	85.4	1.1	1,662	7.8	14.6	7.8											
Piston: Total	20,401,578	1.4	12,771,759	3.3	62.6	3.3	7,629,820	5.1	37.4	5.1											
Fixed Wing - Turboprop																					
1 Engine: Total	288,961	7.7	183,691	2.3	63.6	2.3	105,270	4.0	36.4	4.0											
2 Eng: 1-12 Seats	1,118,606	5.4	56,857	19.8	5.1	19.8	1,061,749	1.4	94.9	1.4											
2 Eng: 13+ Seats	340,521	5.0	29,610	5.2	8.7	5.2	310,911	0.7	91.3	0.7											
2 Engine: Total	1,459,127	3.7	86,468	12.7	5.9	12.7	1,372,660	1.1	94.1	1.1											
Turboprop: Other	16,781	50.2	0	0.0	0.0	0.0	16,781	1.1	100.0	1.1											
Turboprop: Total	1,764,869	3.4	270,159	6.7	15.3	6.7	1,494,710	1.4	84.7	1.4											

**7.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL ANNUAL HOURS AND PERCENT HOURS FLOWN
 WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
 BY AIRCRAFT TYPE**
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 2 OF 3

AIRCRAFT TYPE	Estimate of Annual Hours Flown	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Retrac Landing Gear	Percent Standard Error	
Fixed Wing - Turbojet											
2 Engine Turbojet	1,994,778	5.1	116,025	15.1	5.8	15.1	1,878,753	1.5	94.2	1.5	
Turbojet: Other	231,237	12.2	20,408	5.8	8.8	5.8	210,829	1.0	91.2	1.0	
Turbojet: Total	2,226,014	4.6	136,432	13.1	6.1	13.1	2,089,582	1.4	93.9	1.4	
Fixed Wing: Total	24,392,462	1.4	13,178,350	3.8	54.0	3.8	11,214,112	4.2	46.0	4.2	
Rotorcraft											
Piston	429,978	4.6	425,563	0.7	99.0	0.7	4,414	11.2	1.0	11.2	
1 Eng: Turbine	1,415,157	5.7	1,413,980	1.0	99.9	1.0	1,177	135.8	0.1	135.8	
Multi-Eng: Turbine	497,069	11.4	426,645	1.7	85.8	1.7	70,424	7.9	14.2	7.9	
Turbine: Total	1,912,226	5.2	1,840,624	1.2	96.3	1.2	71,601	14.1	3.7	14.1	
Rotorcraft: Total	2,342,203	3.4	2,266,188	0.9	96.8	0.9	76,016	9.3	3.2	9.3	
Other Aircraft											
Gliders	125,315	9.7	73,933	2.2	59.0	2.2	51,381	3.0	41.0	3.0	
Lighter-than-air	169,409	22.3	169,409	1.5	100.0	1.5	0	0.0	0.0	0.0	
Other aircraft: Total	294,724	12.7	243,342	1.8	82.6	1.8	51,381	5.4	17.4	5.4	

7.2 1998 GENERAL AVIATION AND AIR TAXI TOTAL ANNUAL HOURS AND PERCENT HOURS FLOWN
 WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
 BY AIRCRAFT TYPE
 INCLUDES AIR TAXI AIRCRAFT
 EXCLUDES COMMUTER AIRCRAFT

PAGE 3 OF 3	AIRCRAFT TYPE	Estimate of Annual Hours Flown	Percent Standard Error	Estimate of Hours Flown by Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft by Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft by Aircraft w/ Retrac Landing Gear	Percent Standard Error	Estimate of Hours Flown by Aircraft by Aircraft w/ Retrac Landing Gear	Percent Standard Error
Experimental											
Amateur:	729,116	3.8	585,749	1.7	80.3	1.7	143,367	4.1	19.7	4.1	
Exhibition:	72,590	8.2	15,223	7.9	21.0	7.9	57,367	2.7	79.0	2.7	
Other:	268,986	10.3	113,036	3.3	42.0	3.3	155,950	2.7	58.0	2.7	
Experimental: Total	1,070,692	4.0	714,008	2.1	66.7	2.1	356,684	3.0	33.3	3.0	
Total All Aircraft	28,100,081	1.3	16,401,888	3.1	58.4	3.1	11,698,193	4.0	41.6	4.0	

**7.3 1998 GENERAL AVIATION AND AIR TAXI ACTIVE AIRCRAFT AND TOTAL NUMBER OF AIRCRAFT
 WITH A FIXED OR RETRACTABLE LANDING GEAR SYSTEM
 BY AGE OF AIRCRAFT**
INCLUDES AIR TAXI AIRCRAFT
EXCLUDES COMMUTER AIRCRAFT

PAGE 1 OF 1		Estimate of Total Active Aircraft w/ Fixed Landing Gear			Percent Standard Error		Estimate of Total Active Aircraft w/ Retract Landing Gear		Percent Standard Error	
AGE OF AIRCRAFT (YEARS OLD)	(BUILT)	Estimate of Total Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Total Active Aircraft w/ Retract Landing Gear	Percent Standard Error	Estimate of Total Active Aircraft w/ Fixed Landing Gear	Percent Standard Error	Estimate of Total Active Aircraft w/ Retract Landing Gear	Percent Standard Error	
1 to 5	1994 - 1998	11,250	2.1	4,455	5.3					
6 to 10	1989 - 1993	5,489	2.4	3,123	4.1					
11 to 15	1984 - 1988	4,946	3.4	4,623	3.6					
16 to 20	1979 - 1983	18,180	3.8	16,688	4.2					
21 to 25	1974 - 1978	22,115	3.4	15,139	5.0					
26 to 30	1969 - 1973	15,991	2.9	7,802	6.0					
31 to 35	1964 - 1968	19,071	2.9	8,724	6.3					
36 to 40	1959 - 1963	8,707	3.4	5,332	5.6					
41 to 45	1954 - 1958	6,602	2.7	2,364	7.6					
46 to 50	1949 - 1953	3,353	3.8	1,868	6.8					
51 to 55	1944 - 1948	10,336	1.8	1,314	14.2					
56 to 60	1939 - 1943	3,028	2.1	525	12.3					
Over 60	- 1938	591	2.4	88	16.3					
Year of Manufacture Unknown		1,799	3.7	1,208	5.5					
Total All Aircraft		131,458	3.1	73,253	5.5					

APPENDIX

METHODOLOGY FOR THE 1998 GENERAL AVIATION AND AIR TAXI ACTIVITY (GAATA) SURVEY

APPENDIX A

METHODOLOGY FOR THE 1998 GENERAL AVIATION AND AIR TAXI ACTIVITY (GAATA) SURVEY

1. Overview

In 1993, the name of the General Aviation Activity (GAA) Survey was changed to the General Aviation and Air Taxi Activity (GAATA) Survey to reflect that the survey does include air taxi aircraft. Any aircraft identified as a commuter was excluded from the survey results. The number of computed aircraft types was expanded from 13 to 19 and the minimum manufacturer/model group cell was changed from 20 aircraft to 50 aircraft. Also, in 1993, two new use categories, sightseeing and external load, were added. In 1996 another new use category, public use, was added. The survey methods used for the 1998 survey are identical to those used in previous surveys, with the exception that data obtained in the 1996 and 1998 telephone survey (see section 5.2, Adjustment of the 1998 GAATA Survey Data, on page A-14), have been updated and used to make necessary adjustments to active aircraft and hours flown estimates.

1.1 Purpose of Survey

The purpose of the 1998 General Aviation and Air taxi Activity (GAATA) Survey is to provide the Federal Aviation Administration (FAA) with information on the activity of the general aviation and air taxi fleets. The information obtained from the survey enables the FAA to monitor the general aviation fleet so that it can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the fleet, and implement measures to assure the safe operation in the airspace of all aircraft.

1.2 Background

Prior to the current survey method, the FAA used the Aircraft Registration Eligibility, Identification, and Activity Report, AC Form 8050-73, to collect data on general aviation activity. The form was sent annually to all owners of civil aircraft in the United States and served two purposes: (1) Part 1 was the mandatory aircraft registration revalidation form, and (2) Part 2 was voluntary and applied to general aviation aircraft only, asking questions on the owner-discretionary characteristics of the aircraft such as flight hours, avionics equipment, base location, and use. The FAA used this information to estimate aircraft activity.

In 1978, the FAA replaced AC Form 8050-73 with a new system: Part 1 was replaced by a triennial registration program. In January 1978, the FAA implemented a new procedure, known as triennial revalidation, for maintaining its master file. Instead of requiring all aircraft owners to revalidate and update their aircraft registration annually, FAA only required revalidation for those aircraft owners who had not contacted the FAA registry for three years. This less frequent updating of the master file affected its accuracy and representativeness:

- 1) the accuracy of current owners and their addresses has deteriorated;

- 2) the master file combined a residue of aircraft which, under the old revalidation system, would have been reregistered and purged from the file but now remain under the new system.

Part 2 was replaced by the annual General Aviation Activity Survey, FAA Form 1800-54. The 1998 version of Form 1800-54 is shown in Figure A.1. The survey is conducted annually, based on a statistically selected sample of aircraft, and it requests the same type of information as part 2 of AC Form 8050-73. The first survey took place in 1978, collecting data on the 1977 general aviation fleet. The 1998 statistics in this report were derived from the twenty-first survey, which took place in 1999. Benefits resulting from the new system of data collection include quicker processing of the results, improved data quality, and considerable savings in time and money to both the public and the Federal Government.

2. SURVEY COVERAGE

2.1 Aircraft

The 1998 General Aviation and Air Taxi Activity (GAATA) Survey covers, through a stratified probability sample, all civil aircraft registered with the FAA except those operated under Federal Aviation Regulations (FAR) Part 121 as defined in Part 119. These regulations govern operators carrying passengers and cargo for hire. They apply to scheduled operations with ten or more passengers and turbojet operations regardless of the number of passengers. They also apply to supplemental (unscheduled passenger or cargo) operations with more than 30 seats and/or a payload capacity of more than 7,500 pounds. Thus, the survey includes aircraft operating under:

Part 91: General operating and flight rules.

Part 125: Certification and operations: Airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more (but not for hire.)

Part 133: Rotorcraft external load operations.

Part 135: On-demand (air taxi) and commuter operations not covered by Part 121.

Part 137: Agricultural aircraft operations.

Certain aircraft meeting the above criteria have been excluded from the survey. This group includes N-numbers registered to manufacturers but not associated with a completed aircraft, aircraft in the process of being sold or with registration pending, aircraft with known invalid addresses, and aircraft for which not enough information was available to categorize them properly for sampling purposes.

Figure A.1 SURVEY QUESTIONNAIRE (Front Side)

Form Approved OMB No. 2120-0060



U.S. Department of Transportation
Federal Aviation Administration

1998 GENERAL AVIATION AND AIR TAXI ACTIVITY SURVEY

(As of December 31, 1998)

A survey for owners of airplanes, jets, rotorcraft, gliders, balloons and other aircraft

Submission of this form is voluntary. The information you provide will be used only for statistical purposes and will not be published or released in any form that would reveal specific information reported by an individually identifiable respondent.

[] []

1A. AIRCRAFT CHARACTERISTICS

If this is not your aircraft, please state so and return the survey form.

1B.

Federal Aviation Administration
800 Independence Ave., SW
APO-110 (Survey)
Washington, DC 20591
FAX No. (202) 267-9636

INSTRUCTIONS: Please answer questions for the aircraft in 1A at right.
Mail the completed questionnaire in the enclosed, postage-paid envelope to 1B:

2. Did you operate this aircraft in 1998 primarily as a commercial air carrier (FAR Part 121), or did you lease this aircraft to an air carrier?
a..... YES. Do not complete the rest of this form. Please return the form to the address shown above in the enclosed postage-paid envelope.
b..... NO. Please continue completing the rest of this form.
3. Did you operate this aircraft in 1998 primarily for **scheduled** regional/commuter passenger service (FAR Part 135) or did you lease this aircraft to a regional/commuter **scheduled** passenger service operator? a..... YES. b..... NO.
4. In what State in the U.S. was this aircraft based as of December 31, 1998? (Please use two character State abbreviation)
5. In what year was this aircraft manufactured?
6. Is a global positioning system (GPS) used with this aircraft? a..... YES. b..... NO.

CHECK ALL THAT APPLY

If YES, is the GPS: Hand-held, not IFR Approved--used for VFR only
only.....**c.**

Panel-mounted, not IFR Approved--used for VFR only

Panel-mounted, IFR En Route--Approved.....

Panel-mounted, IFR Non Precision Approach--Approved

LIFETIME HOURS

7. What were the total lifetime airframe hours as of December 31, 1998?
8. Was the aircraft flown in Calendar Year 1998? a..... YES. b..... NO.

If NO, survey is complete. Please return the form to the address shown above in the enclosed postage-paid envelope.

HOURS FLOWN

9. How many hours did this aircraft fly in Calendar Year 1998? (Include estimated rental and leased hours).....
10. What percent of the hours entered in Question 9 did this aircraft fly in each of the following categories?

PERCENT OF HOURS FLOWN

PUBLIC USE—Federal, state or local government owned or leased aircraft used in fulfilling a governmental function

CORPORATE/EXECUTIVE TRANSPORTATION—Company flying with a paid, professional crew

BUSINESS TRANSPORTATION—Individual use for business transportation without a paid, professional crew

PERSONAL/RECREATIONAL—Flying for personal reasons (excludes business transportation)

INSTRUCTIONAL—Flying under the supervision of a flight instructor (excludes proficiency flight)

AERIAL APPLICATION IN AGRICULTURE AND FORESTRY—For crop and timber production and protection

OTHER AERIAL APPLICATION—Health, cloud seeding, firefighting including forests fires, insect control, etc.

AERIAL OBSERVATION—Aerial mapping/photography, patrol, search and rescue, hunting, highway traffic advisory, ranching, surveillance, oil and mineral exploration, criminal pursuit, fish spotting, etc.

EXTERNAL LOAD—Operation under FAR Part 133, rotorcraft external load operations, examples include:
helicopter hoist, hauling logs, etc.

OTHER WORK USE—Construction work (not FAR Part 135 operation), parachuting, aerial advertising, towing gliders, etc....

SIGHTSEEING—Commercial sightseeing conducted under FAR Part 91

AIR TOURS—Commercial sightseeing conducted under FAR Part 135

REGIONAL/COMMUTER—FAR Part 135 **scheduled** passenger service only

AIR TAXI—FAR Part 135 **on-demand** passenger and all cargo operations (not scheduled passenger service or air tours).....

What was the average revenue in dollars per hour for this aircraft in air taxi (on-demand) operations? \$

OTHER—Experimentation, R&D, testing, Government demonstration, air show, air racing, proficiency flight, etc.

TOTAL PERCENT OF HOURS FLOWN (a+b+c+d+e+f+g+h+i+j+k+l+m+n+p)=

100%

Figure A.1 SURVEY QUESTIONNAIRE (Back Side)

Form Approved OMB No. 2120-0060

11. Was the aircraft rented or leased to others in 1998? a..... <input type="checkbox"/> YES b..... <input type="checkbox"/> NO					RENTAL HOURS											
If "YES," for how many rental or leased hours?					c.											
<p>NOTE: The total number of hours flown in Question 12a and Question 13a, b, and c should equal the total number of hours flown in Question 9.</p>					NUMBER OF LANDINGS											
<p>12. In 1998, how many hours were flown under:</p> <p>IFR Flight Plans a.</p> <p>What percent of the IFR hours were flown under:</p> <table border="0"> <tr> <td>Day Instrument Meteorological Conditions (IMC) b.</td> <td>%</td> </tr> <tr> <td>Day Visual Meteorological Conditions (VMC) c.</td> <td>%</td> </tr> <tr> <td>Night Instrument Meteorological Conditions (IMC) d.</td> <td>%</td> </tr> <tr> <td>Night Visual Meteorological Conditions (VMC) e.</td> <td>%</td> </tr> <tr> <td colspan="2">TOTAL PERCENT OF IFR HOURS FLOWN (b+c+d+e) =</td> </tr> <tr> <td colspan="2">100%</td> </tr> </table>						Day Instrument Meteorological Conditions (IMC) b.	%	Day Visual Meteorological Conditions (VMC) c.	%	Night Instrument Meteorological Conditions (IMC) d.	%	Night Visual Meteorological Conditions (VMC) e.	%	TOTAL PERCENT OF IFR HOURS FLOWN (b+c+d+e) =		100%
Day Instrument Meteorological Conditions (IMC) b.	%															
Day Visual Meteorological Conditions (VMC) c.	%															
Night Instrument Meteorological Conditions (IMC) d.	%															
Night Visual Meteorological Conditions (VMC) e.	%															
TOTAL PERCENT OF IFR HOURS FLOWN (b+c+d+e) =																
100%																
<p>13. In 1998, how many hours were flown under:</p> <p>VFR Flight Plans a.</p> <p>No Flight Plans b.</p> <p>Other/Unknown c.</p> <p>What percent of these hours did the aircraft fly under:</p> <table border="0"> <tr> <td>Day Visual Meteorological Conditions (VMC) d.</td> <td>%</td> </tr> <tr> <td>Night Visual Meteorological Conditions (VMC) e.</td> <td>%</td> </tr> <tr> <td colspan="2">TOTAL VMC PERCENT HOURS FLOWN (d+e) =</td> </tr> <tr> <td colspan="2">100%</td> </tr> </table>					Day Visual Meteorological Conditions (VMC) d.	%	Night Visual Meteorological Conditions (VMC) e.	%	TOTAL VMC PERCENT HOURS FLOWN (d+e) =		100%		CHECK ONLY ONE			
Day Visual Meteorological Conditions (VMC) d.	%															
Night Visual Meteorological Conditions (VMC) e.	%															
TOTAL VMC PERCENT HOURS FLOWN (d+e) =																
100%																
<p>14. How many landings (including water, and touch and go landings) did this aircraft perform in each of the following categories in 1998?</p> <p>LOCAL FLIGHTS a.</p> <p>CROSS COUNTRY FLIGHTS b.</p> <p>15. What type of landing gear system does this aircraft have?</p> <p>FIXED a.</p> <p>RETRACTABLE b.</p> <p>16. Does this aircraft have an experimental airworthiness certificate?</p> <p>a. <input type="checkbox"/> YES b. <input type="checkbox"/> NO</p> <p>If YES, please indicate if the aircraft, as of December 31, 1998, was:</p> <p>In the test period a.</p> <p>Out of the test period b.</p> <p>17. What single kind/grade of fuel is primarily used in this aircraft?</p> <p>Jet Fuel a.</p> <p>Aviation Fuel: 80 Octane b.</p> <p>Aviation Fuel: 100 Octane c.</p> <p>Aviation Fuel: 100 Octane-Low Lead d.</p> <p>Automotive Gasoline e.</p> <p>Propane f.</p> <p>None g.</p>																

COMMENTS: Suggestions and comments about this survey and questionnaire are requested and will be given careful consideration in planning future surveys.

—Agency Display of Estimated Burden of the General Aviation and Air Taxi Activity Survey—

The public reporting burden for this collection of information is estimated to average 15 minutes per response. If you wish to comment on the accuracy of the estimate or to make suggestions for reducing this burden, please direct your comments to FAA and the OMB at the following addresses:

U.S. DOT Federal Aviation Administration

Office of Management and Budget

2.2 Geographic

The sample survey covers general aviation and air taxi aircraft registered within the United States Aircraft Registry as of December 31, 1998. Over 99 percent of these aircraft are registered to owners living in the 50 states; the District of Columbia; Puerto Rico; and other U.S. territories, which include American Samoa, Guam, and the Virgin Islands.¹

2.3 Content

The survey questionnaire, FAA Form 1800-54 shown previously in Figure A.1, requests the aircraft owner to provide the following information on the sampled aircraft's characteristics and uses for various periods:

- 1) year aircraft was manufactured, hours by use, IFR hours, percentage of hours flown in Instrument Meteorological Conditions (IMC) and Visual Meteorological Conditions (VMC) during the day and evening, fuel type, and number of local and cross country landings for the entire calendar year 1998; and
- 2) airframe hour reading and the aircraft's base location as of December 31, 1998

3. SURVEY METHOD

The survey data were collected by mailing the questionnaire to the owners of the sampled aircraft in three mailings. The first mailing in March 1999 covered all 30,114 aircraft in the sample and had a response rate of 43.1 percent, as shown in Table A.1. This accounted for approximately 70 percent of the total responses to the survey. The second mailing in April, 1999 included only those aircraft in the sample that had not yet been received or had not yet responded and were not a Post Master Return (PMR). The second mailing had a response rate of 21.7 percent, which accounted for approximately a quarter of the total responses to the survey. The third mailing in May 1999 was sent to owners of the sampled aircraft who had not responded to the first or second mailings as of a specified date. The third mailing produced a response rate of 11.8 percent, or approximately twelve percent of the total responses to the survey. The overall survey responses resulted in a response rate of 64.3 percent.

TABLE A.1 SUMMARY OF RESPONSE INFORMATION

PHASE	VALID SAMPLE	RESPONSES	RESPONSE RATE	% TOTAL RESPONSE
1 ST Mailing	30,114	12,986	43.1%	70.5%
2 ND Mailing	15,535	3,993	25.7%	21.7%
3 RD Mailing	11,542	1,363	11.8%	7.4%
TOTAL:	28,521²	18,342³	64.3%⁴	100.0

¹Source: FAA Aircraft Registration Master File as of December 31, 1998.

² The Total Valid Sample Size used to compute the overall survey response rate excludes all Postmaster returns (PMRs).

³ The total responses include air carrier and commuter aircraft.

⁴ The formula used to compute the overall response rate was Total Number of Responses divided by the Sample Size minus the PMRs (1,593).

Each of the three mailings was accompanied by a cover letter, shown respectively in Figures A.2, A.3, and A.4 at the back of this appendix.

4. SAMPLE DESIGN

4.1 Sample Frame and Size

The FAA Mike Monroney Aeronautical Center in Oklahoma City maintains the Aircraft Registration Master File, which is the official record of registered civil aircraft in the United States.

The sample frame is made up of all aircraft identified as general aviation in the master file (according to the definition in Section 2.1), with the following exception:

- 1) aircraft registered to dealers;
- 2) aircraft with "Sale Reported" or "Registration Pending" appearing in the record instead of the owner's name;
- 3) aircraft with a known, inaccurate owner's address;
- 4) aircraft with missing state of registration, aircraft make-model-series code, or aircraft type information; and

For calendar year 1998, the sample frame consisted of 255,309 general aviation aircraft records from which 30,114 records were sampled, yielding an 11.8 percent sample. Table A.2 shows, by aircraft type, the distribution of the sample compared to that of the population. This clearly demonstrates the disproportionality of the sample to the population, an intended result of the sample design to gain efficiency and to control errors.

4.2 Description of Sample Design

The sample design employed was a stratified, systematic design from a random start. The sample was selected from a two-way stratified frame matrix. The two stratification criteria were:

- 1) state or territory of aircraft registration, and
- 2) aircraft type

The 54 levels of the state criterion and the 19 levels of aircraft type yielded a matrix of 54 by 19 or 1,026 cells (strata) among which the frame was divided for sampling.

The FAA's primary requirement is for estimates of average annual flight hours per aircraft, necessitating optimal determination of sample sizes based on flight hour variation by state and by aircraft type, and not on population. Hence, the sample was not proportional to size, and a sampling fraction was determined for each cell with a non-zero population. Sample units were randomly selected within individual cells, yielding a final sample size of 30,114 aircraft.

**TABLE A.2 SAMPLE AND POPULATION
DISTRIBUTION BY AIRCRAFT TYPE**

<u>TYPE</u>	<u>APPROXIMATE POPULATION</u>	<u>SAMPLE SIZE</u>	<u>SAMPLE AS % OF POPULATION</u>
Fixed Wing – Piston			
1 Engine: 1-3 Seats	59,408	6,149	10.4%
1 Engine: 4+ Seats	114,030	7,791	6.8%
2 Engine: 1-6 Seats	15,233	1,504	9.9%
2 Engine: 7+ Seats	6,800	1,569	23.1%
Piston: Other	214	58	27.1%
Fixed Wing-Turboprop			
1 Engine: Total	1,071	241	22.5%
2 Engine: 1-12 Seats	4,231	397	9.4%
2 Engine: 13+ Seats	1,041	1,036	99.5%
Turboprop: Other	97	32	33.0%
Fixed Wing – Turbojet			
2 Engine	6,275	981	15.6%
Turbojet: Other	689	359	52.1%
Rotorcraft			
Piston	3,560	2,532	71.1%
1 Engine: Turbine	4,419	866	19.6%
Multi-Engine: Turbine	1,076	184	17.1%
Other Aircraft			
Gliders	2,723	541	19.9%
Lighter-than-Air	5,718	961	16.8%
Experimental			
Amateur	24,151	4,283	17.7%
Exhibition	2,431	215	8.8%
Other	2,141	315	14.7%
TOTAL:	255,309⁵	30,114	11.8%

Initially, each aircraft in the sample was given a weight which was the inverse of its cell's sampling fraction, and which corresponded to the number of aircraft in the sample frame represented by that aircraft. When all responses to the survey were tallied, each weight was

⁵ In previous years the General Aviation population was adjusted downward for GAATA surveys that were returned where owners identified the aircraft as an air carrier. In 1998, the population was also adjusted downward to account for the percentage of survey non-respondents who are air carriers. The percentage of survey respondents who identified themselves as air carriers in the 1998 GAATA survey was used as the estimate of the percent of GAATA survey nonrespondents who are air carriers.

adjusted according to the response rate for the cell, counting an aircraft for which no survey questions were answered as a non-respondent, and an aircraft for which at least one question was answered as a respondent.

The weight adjustment is described as follows:

- 1) non-respondents' and post return weights were changed to zero; and
- 2) the weights of all responding aircraft were adjusted uniformly by dividing the initial weight by the response rate for the cell.

This method of weight adjustment has several attributes. It actually incorporates the response rates into the final weights and simplified estimation procedures.

4.3 Error

Errors associated with estimates derived from sample survey results fall into two categories: sampling and non-sampling errors. Sampling errors occur because the estimates are based on a sample rather than the entire population.

Non-sampling errors arise from a number of sources such as non-response, inability or unwillingness of respondents to provide correct information, differences in interpretation of questions, mistakes in recording or coding the data obtained, and others. The following sections discuss the two types of errors.

4.4 Sampling Error

In a designed survey, the sampling error associated with an estimate is generally unknown, but a measurable quantity, known as the standard error, is often used as a guide to the potential magnitude of sampling error. The standard error measures the variation which would occur among the estimates from all possible samples of the same design from the same population. It measures the precision with which an estimate approximates the average result of all possible samples or the result of a survey in which all elements of the population were sampled.

Through sample design techniques, the statistician can control the sizes of standard errors on a few key variables, known as design variables, in the survey. The design variables in the GAATA Survey are the average annual hours flown per aircraft by aircraft type, by aircraft manufacturer/model characteristics and by state of aircraft registration. The sample is designed to produce standard errors on these variables at levels specified by the FAA. No controls are placed on the standard errors of the non-design variables.

An estimate and its standard error make it possible to construct an interval estimate with the prescribed confidence that the interval will include the average value of the estimate from all possible samples of the population. Table A.3, on the following page, shows selected interval widths and their corresponding confidence.

TABLE A.3 CONFIDENCE OF INTERVAL ESTIMATES

<u>WIDTH OF INTERVAL</u>	<u>APPROXIMATE CONFIDENCE THAT INTERVAL INCLUDES AVERAGE VALUE</u>
1 Standard error	68%
2 Standard error	95%
3 Standard error	99%

Every estimate resulting from a sample survey, whether it be for a design or non-design variable, has sampling error associated with it. The user of survey results must consider sampling error along with the point estimate itself when making inferences or drawing conclusions about the sample population. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. To facilitate the comparison of estimates and their errors, the tables in this publication display standard errors for all estimated quantities. For the most part, the measure of precision presented in this report is the relative standard error, which is merely the ratio of the standard error to the estimate times 100 (to convert the fraction to a percent). In addition to immediately communicating the relative precision of the estimate, it allows ready comparison of the survey's performance across variables. The following is an example of how to use the relative standard error: from Table 2.1, a 95 percent confidence interval for the number of active rotorcraft with piston engines would be 2,545 plus or minus $2(9.0/100)(2,545)$ or the interval between 2,087 and 3,003. One would say that with 95 percent confidence that the number of active rotorcraft with piston engines lies somewhere between 2,087 and 3,003. Another way of expressing this is that we are highly confident (95 percent) that the number of active rotorcraft with piston engines is within plus or minus $2(9.0)$ percent or 18.0 percent of 2,545.

4.5 Non-Sampling Error

Sampling error can be reduced through survey design, however, the amount of non-sampling error is difficult, if not impossible, to quantify in any given design. There are, however, various techniques which can limit non-sampling error.

Several of these techniques were incorporated into the design of the GAATA Survey and are itemized below:

- 1) A second and third mailing, including a prompting (reminder) letter, were sent to nonrespondents in addition to the original mailing in order to improve the response rate, since a low response rate is a major cause of non-sampling error.
- 2) To assure the owners of the confidentiality of their responses, the back side of the questionnaire cover letter informed that:

"The information you have provided in the past has never been published or released

in any form that would reveal specific information reported by any individually identifiable respondent.”⁶

- 3) Comprehensive editing procedures insured the accuracy of the data transcription to machine readable form and the internal consistency of responses.
- 4) The official and most accurate source of information available on the general aviation and air taxi fleet, the FAA Aircraft Registration Master File, was used as the sampling frame.
- 5) Results were adjusted using data from a telephone survey of nonrespondents conducted in 1998. This adjustment is described in Section 5.1, Adjustments based on the 1998 Telephone Survey of Nonrespondents, on page A-12.

5. RESPONSE RATE

The response rate for 1998 was 64.3%. Possible causes for the less than 100% sample rate response include:

- ◆ The deterioration of the currency of aircraft owners' addresses in the Aircraft Registration Master File, the samples frame. This has caused a gradual increase in the percentage of PMRs. For the 1998 Survey, 5.3% of questionnaires were returned undelivered by the postmaster.
- ◆ Repeated sampling of aircraft in two and possibly three or four successive years. Due to the design of the sample to achieve specified precision in estimates for states and aircraft type, it is impossible to avoid sampling some of the same aircraft in consecutive years. Owners of such aircraft may have been less willing to respond. Increasing the minimum cell size may have somehow mitigated the problem in 1998.

Table A.4, on the following page, reveals the responses by aircraft type.

5.1 Adjustments Based on a Telephone Survey of Nonrespondents

From the conduct of the first General Aviation Activity (GAA) Survey in 1977 through the 1990 Survey year, the survey data were not adjusted to account for nonrespondents (aircraft owners selected as part of the survey sample but who chose not to complete and return the form). This is because telephone surveys of nonrespondents conducted in 1977, 1978 and 1979 did not show any significant differences or inconsistencies between respondents' and nonrespondents' replies. In 1980, the telephone survey was discontinued as a cost-saving measure.

The GAATA Survey response rate has fallen from over 70 percent prior to 1980 to the 60-70 percent range in most years since 1983, and the number of postmaster returns has greatly increased. Therefore, the FAA decided to conduct a telephone survey of nonrespondents to the 1990 GAA Mail Survey. This telephone survey found that there was a significant difference in

⁶ See Figure A.2.

the ratio of active aircraft and inactive aircraft between mail respondents and telephone respondents. Nonresponse adjustment factors derived from these survey results have been applied to the GAA Survey up through 1995. In 1997, a telephone survey of nonrespondents to the 1996 GAATA Mail survey was conducted. In 1998, a telephone survey of nonrespondents to the 1997 GAATA Mail survey was conducted. Again, this survey showed significant differences between respondents and nonrespondents to the mail survey. This information has been used to correct 1998 estimates for nonresponse bias. The results of this telephone survey have also been integrated into the 1991 through 1997 surveys to estimate more accurately active aircraft and hours flown.

TABLE A.4 RESPONSE RATE BY AIRCRAFT TYPE

TYPE	SAMPLE	PMR's	RESPONSES	RESPONSE RATE
Fixed Wing – Piston				
1 Engine: 1-3 Seats	6,149	280	3,889	66.3%
1 Engine: 4+ Seats	7,791	294	5,210	69.5%
2 Engine: 1-6 Seats	1,504	102	847	60.4%
2 Engine: 7+ Seats	1,569	94	814	55.2%
Piston: Other	58	5	25	47.2%
Fixed Wing-Turboprop				
1 Engine: Total	241	7	113	48.3%
2 Engine: 1-12 Seats	397	18	213	56.2%
2 Engine: 13+ Seats	1,036	47	604	62.1%
Turboprop: Other	32	2	18	60.0%
Fixed Wing – Turbojet				
2 Engine	981	62	449	48.9%
Turbojet: Other	359	18	185	54.3%
Rotorcraft				
Piston	2,532	181	1,274	54.2%
1 Engine: Turbine	866	42	483	58.6%
Multi-Engine: Turbine	184	2	113	62.1%
Other Aircraft				
Gliders	541	20	349	67.0%
Lighter-than-Air	961	88	521	59.7%
Experimental				
Amateur	4,283	302	2,903	72.9%
Exhibition	215	0	129	60.0%
Other	315	16	203	67.9%
TOTAL:	30,114	1,593	18,342	64.3%⁷

⁷ The 64.3 response rate is computed by subtracting the PMR's from the total valid sample size of 30,114.

5.2 The Non-respondent Survey

The substantial nonresponse rate for the GAATA Survey and developments in the sampling frame outlined above have led to a concern that there may be a response bias in the survey, especially with respect to the percent and number of aircraft that are active. The hypothesis is that aircraft of owners that do not respond to the survey are less likely to have been active than aircraft of owners that do. If this hypothesis is correct, the results of the survey overstate the percent and number of active aircraft.

In order to test this hypothesis, and to provide data for adjusting the survey findings, a telephone survey of nonrespondents to the 1998 survey was conducted. The survey focused on two substantive questions:

Was this aircraft flown during calendar year 1998?

If so:

How many hours did this aircraft fly in calendar year 1998?

The survey of nonrespondents also included screening questions to determine whether the respondent still owned the aircraft, and whether the aircraft was flown as an air carrier or commuter.

The survey of nonrespondents was conducted by telephone. The sample for the survey was selected at random from the nonrespondents in the 1998 GAATA Survey sample. The sampling objective was to obtain a sample large enough to achieve 95 percent confidence that the telephone survey estimate of the proportion of nonrespondents with active aircraft would be within 5 percent of the true proportion.

5.3 Adjustments of the 1998 GAATA Survey Data

Because of variability between 1996 and 1998 Telephone Non-response Survey data, a combination of the 1996 and 1998 Telephone Nonresponse Survey data were used to adjust the 1998 GAATA Survey results.⁸ Adjustments were made for the percent and number of active aircraft and for average hours flown. Total hours flown were adjusted indirectly, since they are derived from the number of active aircraft and average hours flown. In essence, the adjustment was made by replacing the GAATA Survey results for percent active and average hours with weighted averages of the results of the 1998 GAATA Survey and a combination of the 1996 and 1998 Telephone Nonresponse Survey. The exact procedure is described below. The adjustments were made for each aircraft type, but they carry over to results for aircraft groups, regions and

⁸ To control for instabilities in the Telephone Non-response Survey data, the bias estimates were bounded at a minimum of .8 and a maximum of 1.2. In addition, for aircraft types with less than ten telephone interviews, the bias was set to 1.

states. Adjustments were made in all tables in Chapters 1, 2, 3, 4, 5, 6, and 7 in which the 1998 number or percent of aircraft active, average hours flown, or total hours flown appear.

Weighted averages of the percent of active aircraft and average hours flown were computed as part of the adjustment procedure. The values of percent of active aircraft and average hours flown were taken from the 1998 GAATA Survey results and the combination of the 1996 and 1998 Telephone Nonresponse Survey results. The weights used were the initial weights for the aircraft that responded to the 1998 GAATA Survey and for 1998 GAATA Survey nonrespondents. Weights of the GAATA Survey forms that were returned by the postmaster were not used in the calculations. This "non-treatment" of postmaster returns (PMRs) in the sample has the effect of assuming that PMRs are similar to the average adjusted results. Separate weighted averages were calculated for each of the nineteen aircraft types in the 1998 GAATA Survey. The weighted averages for percent of active aircraft were calculated as follows:

$$\frac{\{(PercentActive)_{Ri} x(TotalWeight)_{Ri}\} + \{(PercentActive)_{TRi} x(TotalWeight)_{NRi}\}}{(TotalWeight)_{Ri} + (TotalWeight)_{NRi}}$$

Where: R=1997 GAATA Respondents
 TR=1998 Telephone Survey Respondents
 NR=1998 GAATA Nonrespondents
 i= Aircraft Type (i=1 to 19)

The weighted averages for average hours flown were calculated as follows:

$$\frac{\{(AverageHours)_{Ri} x(TotalWeight)_{Ri}\} + \{(AverageHours)_{TRi} x(TotalWeight)_{NRi}\}}{(TotalWeight)_{Ri} + (TotalWeight)_{NRi}}$$

Where: R=1998 GAATA Respondents
 TR=1998 Telephone Survey Respondents
 NR=1998 GAATA Nonrespondents
 i= Aircraft Type (i=1 to 19)

The actual adjustment to the 1998 GAATA results was made by modifying the final weight of each aircraft that responded to the 1998 GAATA Survey. First, the weighted averages were converted into adjustment factors for each aircraft type, and then the weight of each responding aircraft was multiplied by the adjustment factor for the aircraft type of that aircraft. The adjustment factors were computed by dividing the weighted averages of the percent active and average hours flown by the unadjusted 1998 GAATA Survey results for these values, i.e.:

$$\frac{(PercentActive)_{WAi}}{(PercentActive)_{Ri}} \text{ and } \frac{(AverageHours)_{WAi}}{(AverageHours)_{Ri}}$$

Where: WA=Weighted Average (calculated above)
R=1998 GAATA Survey Respondents
i= Aircraft Type (i=1 to 19)

Weights of all aircraft in an aircraft type were adjusted by the same proportional amount. This procedure provided a limited amount of disaggregation of the adjustment. Among other implications of this procedure, all aircraft groups within each aircraft type were also adjusted by the same proportional amount. Adjusting the weights of each individual respondent aircraft allowed results for regions and States to be adjusted, even though the adjustment factors were computed at the aircraft type level. Adjustment at the individual record level also produced adjustments in the standard errors.

In 1998, the adjustment lowered the estimate of total number of active aircraft by 903 aircraft or .4 percent. The number of active aircraft in seven individual aircraft types decreased; two individual aircraft types remained unchanged, and ten individual aircraft types had increased active aircraft populations. The adjustment increased the overall estimate of average hours flown by 2.3 hours or 1.7 percent. Average hours flown was adjusted downward for ten individual aircraft types; two individual aircraft types remained unchanged, while seven individual aircraft types' Average Hours increased. The largest incremental increase in average hours (18 percent) was Fixed-wing Piston 2 Engine, 1-6 seats aircraft. Hours flown were decreased by 412,249 hours or 1.5 percent, with eight individual aircraft types adjusted downward; eight individual aircraft types adjusted upward; and three aircraft types remained unchanged.

FIGURE A.2 FIRST COVER LETTER PAGE 1



U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., SW
Washington, DC 20591

February, 1999

Dear Aircraft Owner:

This is the 21st consecutive year that the Federal Aviation Administration (FAA) has conducted the annual General Aviation/Air Taxi Activity Survey to gather valuable information on the general aviation and air taxi fleet activities. The information collected in the survey is used both by the FAA and the aviation industry to help pinpoint potential safety problems, forecast FAA future work force needs and new requirements for air traffic facilities, and to form the bases for critical research and analysis of general aviation issues.

The FAA works closely with general aviation industry groups to make this survey clear, concise, and of maximum usefulness to all interested parties. (Please see the enclosed letter from the various industry associations expressing the importance of the information provided by the survey.)

You are one of about 30,000 aircraft owners selected to participate in the 1998 survey. If you have been selected in previous years, it is because the number of aircraft like yours is small. We, therefore, greatly need your response to further validate our results. Enclosed is a questionnaire requesting information for calendar year 1998. Please read the instructions on the back of this letter, and answer all questions for the aircraft identified on the form.

I urge you to complete the questionnaire and use the enclosed postage paid envelope to mail it in today. Your prompt response will preclude you from receiving follow-up letters and questionnaires during the year. All replies to this questionnaire are held by the FAA in the strictest confidence.

If you have any questions or need further assistance, or if there is any way we can make it easier for you to participate in the survey, please call the following toll-free number: 1-800-373-9040 and one of my staff will answer your questions. If your call is not returned within 24 hours, please contact me at 202-267-3355. You can also e-mail questions or comments to 9-APO-GASURVEY@ faa.gov.

The FAA and the general aviation industry thank you for your participation.

Sincerely,

Robert L. Bowles
Manager, Statistics and Forecast Branch

Enclosures

The 1998 General Aviation and Air Taxi Activity Survey

Why does the FAA collect this information?

For the past 21 years, the FAA has conducted this annual sample survey to collect information on the uses of the general aviation fleet. The information that is collected helps the FAA understand more about general aviation activities, assess the impact of general aviation activities on the National Airspace System, and determine the need for increased traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industry and individuals, for safety analyses, planning, forecasting, and research & development. We have made a concerted effort to minimize the number of questions we ask while still meeting the needs of government and the public for aviation information.

How does the FAA handle the survey information?

The information aircraft owners have provided for this survey in the past has never been published or released in any form that would reveal specific information reported by an identifiable respondent.

Why was I selected for this survey?

This survey covers general aviation aircraft and air taxis. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1998. The Registry shows you as a registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed this year. If you have been selected in previous years, it is because the number of aircraft like yours is small. We, therefore, greatly need your response to further validate our results. When more than one of your aircraft is selected, you will receive, under separate cover, a questionnaire for each aircraft. Please answer all questions for the identified aircraft only. If you cannot provide a precise answer to any questions, make your best estimate.

What should I do if...

- *If...* you are no longer in possession of this aircraft but were the registered owner on December 31, 1998, try to answer all the questions. If your aircraft was sold prior to December 31, 1998 *please forward this mail to the new owner for response.*
- *If...* your aircraft was operated by an airline (FAR Part 121), *indicate this in question 2 and return the questionnaire to the FAA.*
- *If...* your aircraft, for whatever reason, was not in use during calendar year 1998, answer questions 4, 5, 6, 7 and 17 and return the questionnaire to the FAA. *The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.*
- *If...* your aircraft was operated primarily by another person or company (e.g., leased), *please obtain the necessary information from the operator, or forward this mail to the person or firm for response.*
- *If...* your aircraft was stolen, destroyed, lost, donated to an organization, or otherwise not in your possession, *and you have not yet notified the FAA Aircraft Registry in writing, please do so immediately at the following address:*

Aircraft Registration Branch, AFS-750
P. O. Box 25504
Oklahoma City, OK 73125

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 954-3116.

- *If...* you wish to fax the survey information to us, our FAX No. is: (202) 267-9636
- *If...* you have a question about the survey, call us on our toll free number: 1-800-373-9040. You can also e-mail us at 9-APO-GASURVEY@faa.gov.

FIGURE A.3 SECOND COVER LETTER PAGE 1



U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., SW
Washington, DC 20591

April, 1999

Dear Aircraft Owner:

We need your input!

In February, we sent you a General Aviation/Air Taxi Activity Survey questionnaire to compile 1998 aircraft activity information. We have not received your response.

In case our first mailing never reached you or was misplaced, we have enclosed another identical questionnaire with a return postage-paid envelope for your convenience. Please read the instructions on the back page of this letter, complete the questionnaire, and use the enclosed envelope to return it to us today.

If you have any questions or need further assistance, or if there is any way we can make it easier for you to participate in the survey, please call the following toll-free number: 1-800-373-9040 and one of my staff will answer your questions. If your call is not returned within 24 hours, please contact me at 202-267-3355. You can also e-mail questions or comments to 9-APO-GASURVEY@faa.gov. If your response is already in the mail, we thank you for your cooperation.

We look forward to receiving your response so that the FAA and the general aviation industry can know more about general aviation flying and serve you better. Thank you for your participation.

Sincerely,

Robert L. Bowles
Manager, Statistics and Forecast Branch

Enclosures

FIGURE A.3 SECOND COVER LETTER PAGE 2

The 1998 General Aviation and Air Taxi Activity Survey

Why does the FAA collect this information?

For the past 21 years, the FAA has conducted this annual sample survey to collect information on the uses of the general aviation fleet. The information that is collected helps the FAA understand more about general aviation activities, assess the impact of general aviation activities on the National Airspace System, and determine the need for increased traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industry and individuals, for safety analyses, planning, forecasting, and research & development. We have made a concerted effort to minimize the number of questions we ask while still meeting the needs of government and the public for aviation information.

How does the FAA handle the survey information?

The information aircraft owners have provided for this survey in the past has never been published or released in any form that would reveal specific information reported by an identifiable respondent.

Why was I selected for this survey?

This survey covers general aviation aircraft and air taxis. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1998. The Registry shows you as a registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed this year. If you have been selected in previous years, it is because the number of aircraft like yours is small. We, therefore, greatly need your response to further validate our results. When more than one of your aircraft is selected, you will receive, under separate cover, a questionnaire for each aircraft. Please answer all questions for the identified aircraft only. If you cannot provide a precise answer to any questions, make your best estimate.

What should I do if...

- *If...* you are no longer in possession of this aircraft but were the registered owner on December 31, 1998, try to answer all the questions. If your aircraft was sold prior to December 31, 1998 **please forward this mail to the new owner for response.**
- *If...* your aircraft was operated by an airline (FAR Part 121), **indicate this in question 2 and return the questionnaire to the FAA.**
- *If...* your aircraft, for whatever reason, was not in use during calendar year 1997, answer questions 4, 5, 6, 7 and 17 and return the questionnaire to the FAA. **The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.**
- *If...* your aircraft was operated primarily by another person or company (e.g., leased), **please obtain the necessary information from the operator, or forward this mail to the person or firm for response.**
- *If...* your aircraft was stolen, destroyed, lost, donated to an organization, or otherwise not in your possession, **and you have not yet notified the FAA Aircraft Registry in writing, please do so immediately at the following address:**

**Aircraft Registration Branch, AFS-750
P. O. Box 25504
Oklahoma City, OK 73125**

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 954-3116.

- *If...* you wish to fax the survey information to us, our FAX No. is: (202) 267-9636
- *If...* you have a question about the survey, call us on our toll free number: 1-800-373-9040. You can also e-mail us at 9-APO-GASURVEY@faa.gov.

FIGURE A.4 THIRD COVER LETTER PAGE 1



U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., SW
Washington, DC 20591

May, 1999

Dear Aircraft Owner:

The Federal Aviation Administration needs your help. Please participate in the 1998 General Aviation/Air Taxi Activity and Avionics Survey.

In February and April, we sent you a General Aviation/Air Taxi Activity Survey questionnaire to compile the 1998 aircraft activity information. We have not received your response.

In case the previous mailings never reached you or were misplaced, we have enclosed another identical questionnaire with a return postage-paid envelope for your convenience. Please read the instructions on the back page of this letter, complete the questionnaire, and use the enclosed envelope to return it to us today.

If you have any questions or need further assistance, please call the following toll-free number: 1-800-373-9040 and one of my staff will answer your questions. If your call is not returned within 24 hours, please contact me at 202-267-3355. You can also e-mail questions or comments to 9-APO-GASURVEY@faa.gov.

We look forward to receiving your response no later than June 15, so that we can include your input in the 1998 statistics.

If your response is already in the mail, thank you for your cooperation.

Sincerely,

Robert L. Bowles
Manager, Statistics and Forecast Branch

Enclosures

FIGURE A.4 THIRD COVER LETTER PAGE 2

The 1998 General Aviation and Air Taxi Activity Survey

Why does the FAA collect this information?

For the past 21 years, the FAA has conducted this annual sample survey to collect information on the uses of the general aviation fleet. The information that is collected helps the FAA understand more about general aviation activities, assess the impact of general aviation activities on the National Airspace System, and determine the need for increased traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industry and individuals, for safety analyses, planning, forecasting, and research & development. We have made a concerted effort to minimize the number of questions we ask while still meeting the needs of government and the public for aviation information.

How does the FAA handle the survey information?

The information aircraft owners have provided for this survey in the past has never been published or released in any form that would reveal specific information reported by an identifiable respondent.

Why was I selected for this survey?

This survey covers general aviation aircraft and air taxis. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1998. The Registry shows you as a registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed this year. If you have been selected in previous years, it is because the number of aircraft like yours is small. We, therefore, greatly need your response to further validate our results. When more than one of your aircraft is selected, you will receive, under separate cover, a questionnaire for each aircraft. Please answer all questions for the identified aircraft only. If you cannot provide a precise answer to any questions, make your best estimate.

What should I do if...

- *If...* you are no longer in possession of this aircraft but were the registered owner on December 31, 1998, try to answer all the questions. If your aircraft was sold prior to December 31, 1998 ***please forward this mail to the new owner for response.***
- *If...* your aircraft was operated by an airline (FAR Part 121), ***indicate this in question 2 and return the questionnaire to the FAA.***
- *If...* your aircraft, for whatever reason, was not in use during calendar year 1997, answer questions 4, 5, 6, 7 and 17 and return the questionnaire to the FAA. ***The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.***
- *If...* your aircraft was operated primarily by another person or company (e.g., leased), ***please obtain the necessary information from the operator, or forward this mail to the person or firm for response.***
- *If...* your aircraft was stolen, destroyed, lost, donated to an organization, or otherwise not in your possession, ***and you have not yet notified the FAA Aircraft Registry in writing, please do so immediately at the following address:***

Aircraft Registration Branch, AFS-750
P. O. Box 25504
Oklahoma City, OK 73125

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 954-3116.

- *If...* you wish to fax the survey information to us, our FAX No. is: (202) 267-9636
- *If...* you have a question about the survey, call us on our toll free number: 1-800-373-9040. You can also e-mail us at 9-APO-GASURVEY@faa.gov.